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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 8.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

An estimate of appropriation submitted by the Secretary of State to meet the expenses of entertaining the foreign delegates to the Pan-American Medical Congress.

DECEMBER 6, 1892.—Referred to the Committee on Appropriations and ordered to be printed.

TREASURY DEPARTMENT,
December 5, 1892.

SIR: I have the honor to transmit herewith, for the consideration of Congress, an estimate of appropriation submitted by the Secretary of State on the 2d instant, to meet the expenses of entertaining the foreign delegates who have been invited to attend the Pan-American Medical Congress, in pursuance of the Joint Resolution of Congress of July 18, 1892, $15,000.

Respectfully yours,

CHARLES FOSTER,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

DEPARTMENT OF STATE,
Washington, December 2, 1892.

SIR: I have the honor to request that there be included in the estimates of appropriations to be submitted to Congress at its coming session an item of $15,000 to enable the Secretary of State to meet the expenses of entertaining the foreign delegates who have been invited to attend the Pan-American Medical Congress, in pursuance of the joint resolution of July 18, 1892 (laws of first session, Fifty-second Congress, p. 398), and that Congress be also asked to provide that the printing of the scientific transactions of the congress shall be done by the Public Printer.

I have the honor to be, sir, your obedient servant,

JOHN W. FOSTER.

Hon. CHARLES FOSTER,
Secretary of the Treasury.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 9.

REPORT OF SUPERINTENDENT OF CHARITIES OF THE DISTRICT OF COLUMBIA.

LETTER

FROM

THE SECRETARY OF THE TREASURY

TRANSMITTING

The report of the superintendent of charities of the District of Columbia for the year ending June 30, 1892.

DECEMBER 6, 1892.—Referred to the Committee on Appropriations and ordered to be printed.

TREASURY DEPARTMENT, *December 5, 1892.*

SIR: In accordance with the requirements of the act of August 6, 1890 (26 Stat., 308), I have the honor to transmit herewith, for the information of Congress, the report of the superintendent of charities for the District of Columbia for the year ending June 30, 1892.

The estimates which accompanied said report will be found on pages 268 and 269 of the Book of Estimates for the fiscal year ending June 30, 1894.

Respectfully, yours,

CHARLES FOSTER,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

REPORT

OF THE

SUPERINTENDENT OF CHARITIES

FOR THE

DISTRICT OF COLUMBIA

FOR THE

YEAR ENDING JUNE 30, 1892,

With estimates for the year ending June 30, 1894.

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REPORT OF THE SUPERINTENDENT.

DISTRICT BUILDING,
Washington, D. C., September 30, 1892.

GENTLEMEN: I have the honor to transmit my second annual report as superintendent of charities for the District of Columbia. It includes some account of the operations of the institutions under my supervision during the fiscal year ending June 30, 1891, the estimates of the appropriations for the work of the fiscal year ending June 30, 1894, the legislation passed at the last session of Congress affecting the charities of the District, and various documents and memoranda which it is thought best to print for the information of those interested in the charities of the District.

SCOPE OF THE SUPERINTENDENT'S POWERS.

The work falling under the supervision of the superintendent of charities depends very largely upon the classification of the institutions adopted in the annual appropriation bills. It results from the changes made during the last session of Congress that the appropriation for the deaf and dumb is placed in another part of the appropriation bill, and this work is therefore no longer under his supervision by law, as it has never been in fact. On the other hand, the appropriation for the care of the feeble-minded children of the District who are sent to Elwyn, Pa., under an act approved June 6, 1880, has been left in that part of the appropriation bill for which the superintendent of charities must furnish the estimates. He therefore visited Elwyn and has included some account of the District children there cared for in his present annual report.

The Girls' Reform School, for which an appropriation was first made at the last session of Congress, has been included in this department, although it seems to be by previous legislation in some sort under the Department of Justice as well as under the District Commissioners.

For many years the Boys' Reform School was under the Department of Justice only; but latterly the District Commissioners were given power of supervision over it and required to furnish the annual estimates for its maintenance. By order of the Commissioners dated September 17, 1892, it was directed that hereafter all reports, vouchers, and requisitions of the Boys' Reform School be referred to the Superintendent of Charities, and that the annual estimates for this institution be included in his annual report. This order was made against my recommendation, as it seemed to me that my work for the charities of the District would be more successful if it did not cover too large a field.

The trustees of the Reform School do not yet concede the right of the superintendent to exercise the supervision authorized by the order

of the Commissioners, and no attempt to treat of that institution in the present report has therefore been made.

Another matter which may lead to the extension of the department of the superintendent of charities, was the transfer of the Freedmen's Hospital from the sundry civil bill to the District appropriation bill, with the result that this institution will hereafter be supported from District instead of from purely Federal revenues. The old legislation which placed this institution under the Department of the Interior is not repealed, and, therefore, its present administrative status is somewhat anomalous.

For a number of years a fund of $16,000 has been placed at the disposal of the Commissioners for the "relief of the poor." In compliance with the request of the Commissioners I have submitted recommendations regarding the apportionment of this sum, as also regarding the fund "for the temporary support of indigent persons."

METHODS OF ACCOUNTING.

The work of properly auditing the accounts of private institutions receiving District subsidies is very considerable, both for the Government officials and the managers of the institutions. The accounting officers of the various boards of management are considered disbursing officers of the Federal Government, required to give personal bond, and to return quarterly the vouchers for all public moneys disbursed. In addition to this, as superintendent of charities I have been compelled to ask for summarized quarterly statements of the funds received from private sources and the manner of disbursement. It requires a good deal of the spirit of self-sacrifice on the part of the various treasurers to attend to all these matters, and they deserve as much credit as those that do work which appeals more directly to the sympathies. As new officers take charge of the accounting from time to time, when a great deal of explanation is necessary and a considerable number of mistakes result from a lack of information on the part of the new appointive, I insert here a full statement of the various forms used, and of the requirements of the District and Federal accounting officers.

Reports required of institutions receiving public money.—Institutions receiving public money through the District appropriation bill are under the supervision of the superintendent of charities whenever the items are included in that section of the annual bill headed "For charities." Two sorts of reports are required from such institutions, one to the superintendent of charities, and others which pass through the hands of District officials, but are finally lodged with the accounting officers of the United States Treasury. Blanks for all these reports can hereafter be obtained from the superintendent of charities, and, to avoid mistakes, should be ordered by number. This circular does not modify existing regulations, but merely describes them. Blanks 4 to 7, inclusive, are now for the first time printed by the District, in order to secure uniformity and save trouble on the part of the disbursing officers. In case of delay, a letter addressed to the superintendent of charities will cause him to look up papers that may have been transmitted, and to find out why they have been detained.

Reports to the superintendent of charities.—Forms 1, 2, and 3 are used for the quarterly reports made by subsidized institutions to the superintendent of charities. "Form 1" is for hospitals and dispensaries, "Form 2" for temporary homes, and "Form 3" is for institutions for children, including reformatory and industrial institutions. The financial statements are the same on all these forms and include the information which the superintendent is obliged by law to collect

for the Commissioners and the Congressional committees. The statement of income includes all receipts whatever, classified under the six heads of "balance on hand," "receipts from loans," "public funds," "income from endowments or invested funds," "pay patients or inmates, or the work of inmates," and sixth, "all other sources." This last heading includes subscriptions, donations, membership dues, receipts from fairs, entertainments, and, in short, all forms of private contributions. Expenditures are classified under the six heads of "rent," "salaries," "all other items of maintenance" (which includes ordinary repairs), "permanent improvements" (which includes purchase of real estate), "payment of interest," and "payment of the principal of debts." The report of work done varies according to the character of the institution and is sufficiently explained by the blanks in each case. These reports should be sent in within three weeks after the close of each quarter, and delay beyond this time causes very decided inconvenience to the superintendent of charities.

Reports for the Treasury Department.—When an institution receives money by direct appropriation from Congress, the treasurer of the association or board of trustees is required, first of all, to file a bond as a disbursing officer of the United States Government. The amount of the bond is in proportion to the amount of the appropriation, and is fixed in each case by the Treasury officials. Inquiry regarding it should be made at the office of the First Comptroller of the Treasury, department of District accounts. When an institution that has received ordinarily but a small appropriation receives a much larger one, a larger bond may or may not be required; if not, the advances will not be allowed to exceed at any one time the amount of the bond given. In order to qualify as disbursing officer the treasurer of a new institution or the new treasurer of an old institution should first secure "Form No. 4," which is a blank of the bond which he is required to file, and he should ascertain from the Treasury Department the amount of the bond which he is expected to give. There must be two bondsmen, who must qualify in double the amount of the bond required, and some officer of the Government must certify that the sureties who have signed the bond are responsible and sufficient.

When the bond of the required amount is properly made out and signed it should be sent to the superintendent of charities, by whom it will be forwarded to the Treasury Department. There should accompany the bond a certificate of election of the treasurer and evidence of his authority to indorse for the association or board. Such certificate and evidence should be in the form of an extract from the by-laws or records, showing the authority of the officer to indorse and receive and receipt for moneys for the association or board, and giving his name and the date of his election or appointment, which extract must be verified by a certificate under seal, signed by the president and secretary or by one of these officers and by not less than two of the members of the association or board, which certificate must state that such authority remains unrevoked and unchanged. If the association or board have no seal, the extract should be certified as correct by a notary public or other competent officer under his seal. When a resolution is adopted at a special meeting it must be shown that all had notice of the time and place of such meeting and that a quorum assented to the resolution. Treasury blank, "Form 1779," can be used for this certificate if desired. After the filing of the bond the treasurer can draw a requisition addressed to the Commissioners of the District of Columbia, for which purpose "Form No. 5" is prepared. The requisition must be for only

one quarter. It passes through the hands of the Commissioners, the superintendent of charities, and the District auditor, and, when duly approved by these officers, the Secretary of the Treasury causes a warrant to be issued for the amount of the quarter's allowance to be issued in favor of the Treasurer of the United States, and the money is deposited to the credit of the disbursing officer. The latter should obtain a check book from the United States Treasurer, which must be used in drawing all checks against the account. At the end of the quarter the disbursing officer must furnish vouchers, properly signed, for all his expenditures.

No special blank or form is required for the vouchers themselves. A receipted bill, duly itemized, showing amount of purchase, price, and amount, which is properly approved by the chief officer of the association other than the disbursing officer, will be accepted. An abstract of disbursements is required, for which "Form No. 6" should be used. The vouchers being numbered, a corresponding number is entered on the abstract of disbursements, together with a statement of the person to whom the amount was paid and the amount itself. The voucher number may begin either with the beginning of the fiscal year, with the beginning of each quarter, or at the beginning of the receipt of public money by the institution. With the abstract of disbursements and vouchers should be sent also an "account current," showing the condition of the disbursing officer's account with the United States Treasurer. For this "Form 7" is used.

The account current, abstract of disbursements, and the vouchers should be in a bundle by themselves, and the requisitions not put in with them. This is to avoid delays, as the accounts sometimes have to wait a considerable time before they can be audited, while the requisitions are passed on promptly.

Reports from institutions receiving money by apportionment.—Congress has placed at the disposal of the Commissioners a fund "For the relief of the poor" and another "For the temporary support of indigent persons." From these two funds the Commissioners have been in the habit of apportioning certain amounts to private institutions. The accounts of such institutions do not have to be transmitted to the Treasury Department for final audit, but are filed with the District auditor. All that is required by the latter official is a quarterly statement of expenditures made from the public money received. For this purpose an abstract of disbursements should be used and vouchers handed in along with it.

LEGISLATION AFFECTING CHARITIES.

Several enactments of the first session of the Fifty-second Congress affect the charities of the District. Those bearing especially upon institutions under the superintendent of charities will be noticed in the parts of the report where these institutions are treated. Two laws of considerable importance bearing upon the work of dependent children were passed. The first was an act to provide for the care of dependent children in the District and to create a board of children's guardians. This was approved July 26, 1892, and is given in full elsewhere. The second was an act to prevent cruelty to children or animals in the District of Columbia, and for other purposes. This was approved June 25, 1892. It was introduced at the instance of the Washington Humane Society, whose work it is especially designed to facilitate. Items in the appropriation bills which affect the character of certain District charities were, first, that providing for the maintenance of the Freed

men's Hospital from District revenues; second, that changing the nature of the corporation which governs the Columbia Hospital, and, third, that which provides "that in all cases where Members of Congress or Senators are appointed to represent Congress on any board of trustees or board of directors of any corporation or institution to which Congress makes an appropriation, the terms of said Members or Senators as such trustee or director shall continue until the expiration of two months after the first meeting of the Congress chosen next after their appointment."

ADDITIONAL NOTES REGARDING PUBLIC SUBSIDIES TO PRIVATE CHARITIES.

The experience of a year with the charities of the District has convinced me more fully than ever that the present manner of according them public support is undesirable. The appropriation for the several institutions bears no relation to the number of beneficiaries nor to the amount of support which is provided from private sources. It might have been thought, and indeed was by many, that the superintendent of charities, having the specific duty assigned him of estimating for the various institutions, would be able to reach conclusions fair and satisfactory to all concerned, but on reflection it will be seen that there is no guide for him to follow, any more than there has been for the Commissioners or the committees in the past years. To make an appeal for public money on the general ground that the institution "is doing good" puts that appeal upon exactly the same basis as many possible ones that all would see to be unallowable; for instance, a church or private school, or a temperance association, or a society for the suppression of vice, or an association of volunteer sanitary inspectors "does good," and yet it would not be desirable under ordinary circumstances to subsidize any of these private promoters of the public weal.

It is clear that after it is ascertained that an institution is "doing good" we must also ascertain whether the good that it is doing is of the sort that can be paid for with taxpayers' money, and if so, what proportion of the good done is of this character. The first step in preparing to grant public aid to private charities must, then, be to ascertain clearly what it is proper should be done by means of public appropriations, and then to ascertain with equal clearness just how much of this particular work is being done by the several institutions.

No machinery for ascertaining these facts has existed in the District, nor was it in the power of the superintendent of charities to create such machinery. For instance, the institutions for children receive beneficiaries, each according to very flexible rules of its own enactment; and these rules are administered by matrons or committees having full power in the premises. Each institution is serving several interests. Often one of these is frequently a denominational interest, and it is within the knowledge of the superintendent that many children are admitted or retained primarily for the purpose of securing their education in the faith of a particular sect. More than this, the institutions serve general humanitarian interests which the taxpayers of the District, as taxpayers, would hardly care to serve.

For instance, while I was at one of the institutions application was made for the admission of a little girl from Virginia. The one who applied on her behalf was a missionary of a church supporting the institution referred to. It was clear from his statements that the girl was growing up under considerable abuse and under conditions that made it probable that her life would be wrecked. The lady in charge of the

institution asked me what should be done in a case of this character, and I could only answer that, as a piece of church work, it was eminently proper that she should receive the child; while as a piece of public work, paid for by the taxpayers of the District, it was not at all proper to admit her. At another institution it was found that more than half of the children had been received directly from institutions in other States, some of them coming from as far away as Massachusetts. It was desirable undoubtedly for the church which this institution serves, and on general humanitarian grounds, that these children should be brought here from a distance, trained, and cared for; but, from the standpoint of the District taxpayers, it was not proper that they should be charged upon the District revenues. Many other examples of a like nature could be given, all tending to show that much good may be done for which it is not proper that a Government appropriation should be made.

In my report last year the amounts recommended for the several institutions had no better basis than precedent. It was my wish to keep matters in their previous condition until some more businesslike arrangement could be made; and had I had any doubts as to the unbearable condition of things as they then existed, such doubts would have been dispelled after seeing the Congressional committees trying to reach businesslike conclusions in fixing the appropriations. As one member of those committees remarked, in a disgusted way, "I am satisfied that whatever we do it will be wrong." Nor were the results more satisfactory to the institutions themselves. Those interested in a given institution, seeing no specific reason why such large amounts should be given to other institutions (whose work and methods they possibly failed to correctly apprehend) and so little to themselves, resorted to special pleading that in nowise contributed to inform the committees as to the merits of the given case.

The recommendations of the superintendent of charities, while adopted in the main, could not be followed with exactness, because his knowledge of the subject was not complete enough, so that he had no special confidence in the fairness of his own recommendations. Representatives of almost every one of the institutions interested expressed to him their dissatisfaction with such a method of asking for public support. As one of the gentlemen remarked, "It puts me in the attitude of a beggar, and I do not have to beg." In order to determine what amount should be given to each institution from the public treasury, it is obvious that some method must used of obtaining an accurate estimate of the purely public service which that institution renders. It is proper for the public authorities to make specific payment for specific work, but it is not proper to hand around appropriations on the general theory that the institutions receiving them are doing something that in some way is useful. When the latter method is tried, all sorts of extraneous considerations are brought into the discussion, such as the "recognizing" of a given nationality, or a given denomination, or some other influential class in the community.

It was, therefore, with a good deal of satisfaction that I witnessed the passage of the act to create a board of children's guardians for the District and to establish a municipal lodging house for the care of the homeless poor. In these two departments I think that the new machinery provided for will enable us to introduce the principle of specific payment for specific work, and therefore to put the subsidizing of private institutions on a business basis. The methods of such readjustment will be more fully indicated when treating of the two departments concerned.

DISTRICT CHARITIES FOR THE FISCAL YEAR.

TABLE 1.—*Summary by classes of private institutions receiving District subsidies for year ending June 30, 1892.*

	Institutions. (I.)	Resources and liabilities.			Income from—						
		Estimated value of property owned. (II.)	Outstanding debts. (III.)	Per cent of interest. (IV.)	Balance. (V.)	Public funds. (VI.)	Endowments. (VII.)	Pay inmates or work of inmates. (VIII.)	All other sources, subscriptions, donations, dues, etc. (IX.)	From loans. (X.)	Total. (XI.)
1	Medical charities	$689,052.97	$45,660	.....	$11,476.79	$43,010.00	$6,341.50	$10,866.81	$12,877.50	$5,016.81	$89,589.41
2	Industrial and reformatory institutions	298,000.00	87,000	.....	2,069.69	20,096.74	25.00	7,256.54	2,231.86	.....	31,679.83
3	Institutions for children	396,930.00	7,500	.....	6,212.01	33,899.17	1,604.07	1,128.75	13,985.26	5,802.66	62,631.92
4	Temporary homes	46,050.00	.....	.....	1,952.18	11,049.69	.....	5,350.98	3,425.12	.....	21,777.97
5	Total	1,430,032.97	140,160	5–6	21,710.67	108,055.60	7,970.57	24,603.08	32,519.74	10,819.47	205,679.13

	Institutions. (I.)	Expenditures for—								Average annual cost per inmate to District government. (XX.)	Average annual cost per inmate to institution.		Per cent of income less balances, earnings and loans contributed by District government.. (XXIII.)
		Rent. (XII.)	Salaries. (XIII.)	All other forms of maintenance, including repairs. (XIV.)	Permanent improvements, including purchase of real estate. (XV.)	Interest on debts. (XVI.)	Payment of the principal of debts. (XVII.)	Total. (XVIII.)	Balance. (XIX.)		Gross. (XXI.)	Net. XXII.	
1	Medical charities	$1,743.36	$20,766.83	$41,551.54	$10,494.64	$2,475.74	$3,000.00	$80,032.11	$9,557.30	.....	.....	.....	58.8
2	Industrial and reformatory institutions	.....	6,065.75	22,697.66	190.88	1,389.58	.....	30,343.87	1,335.96	$77.92	$111.53	$83.39	89.9
3	Institutions for children	495.00	13,338.15	26,790.12	11,518.00	795.96	2,185.17	55,122.40	7,509.52	82.34	98.68	93.51	68.5
4	Temporary homes	2,682.04	3,459.91	13,203.85	.....	.....	.....	19,345.80	2,432.17	.....	.....	.....	70.5
5	Total	4,920.40	43,630.64	104,243.17	22,203.52	4,661.28	5,185.17	184,844.18	20,834.95	.....	.....	.....	72.7

Table 1, printed herewith, summarizes the financial operations of the three classes of institutions whose work is reviewed in this report. It will be seen that these three classes of institutions, taken together, receive from endowments $7,970.57, from earnings $24,603.08, and from all other private sources, including subscriptions, donations, dues etc., but not including loans, $32,519.74. Few of them have to pay rent, as only $4,920.40 was expended for this purpose. The gross value of their property is nearly a million and a half. The expenditures for salaries amounted to $43,630.64; for all other items of maintenance, including ordinary repairs, $104,243.17; for permanent improvements, including purchase of real estate, $22,203.52. For interest on debts, $4,661.28; for the payment of the principal of debts, $5,185.17.

The per cent of income less balances, earnings, and loans contributed from the public revenues was 72.7. A reduction of 3.3 per cent from the year before.

MEDICAL CHARITIES.

TABLE 2.—*Public expenditures for medical charities in ten American cities.*

City.	Population (census of 1890).	Fiscal year.	Amount.	Per capita.
Brooklyn	806,343	1889–90	$196,115.61	$0.2432
St. Louis	451,770	1889–90	140,773.43	.3116
Boston *	448,477	1890	188,177.88	.4195
Baltimore	434,439	1891	111,790.00	.2573
Cincinnati	296,908	1890 or '91	110,162.92	.3710
Buffalo	255,664	1891	67,650.00	.2646
Minneapolis	164,738	1890	17,842.64	.1083
St. Paul	133,156	1890	27,269.02	.2074
Indianapolis	105,436	1891	29,170.00	.2767
Washington	230,392	1890–91	145,625.00	.6320
All ten cities	3,327,323	.....	1,034,576.50	.31093

* The figures for Boston cover the expenditures for the city hospital only. Since the table has passed from under my hands I learn that there are expenditures on the part of the State for medical charities which serve the poor of Boston, and the per capita might possibly be as high as that of Washington if all the items could be included. However, the service is of a much higher grade than that given in Washington, costing nearly twice as much per patient per week.

In table No. 2, printed herewith, are given the public expenditures of ten American cities for the purpose of supporting medical charities. It will be seen that during the census year, to which the figures for the most part refer, that the cities spent from a little less than 11 to a little more than 63 cents per head for this purpose, the average being 31.09 cents. The per capita expenditure of Washington is twice the average of the ten cities and some 20 cents per head higher than that of any other city investigated. Our expenditures for the year named amounted to $145,625. Of this, the appropriations for three institutions, the Freedmen's Hospital, the Providence Hospital, and the Garfield Hospital were made in the sundry civil bill and came from purely Federal revenues. The appropriation for the Washington Asylum and its hospital department came from the District revenues, but is not under the superintendent of charities. The appropriations for physicians to the poor and medicine and for the several dispensaries were obtained from the fund for the relief of the poor placed at the disposal of the Commissioners. Only three of the seven hospitals subsidized were under the superintendent of charities, and these were not the largest nor most important.

The amount expended for medical charities is probably larger than is necessary for this city, but there is no way of reaching definite con-

clusions in this matter, since no one official has any right to inquire into the operations of all the institutions concerned, or to make recommendations comprehending the whole system of medical charities of the District.

Medical charities serve two very distinct purposes. One is the relief of the poor and the other is the advancement of the professional interests, by educational and other means, of the members of the medical profession. It has been found that in nearly all cases where the condition of the applicants for medical relief was thoroughly investigated, that many applied for such relief who were able to pay for it, and should have been compelled to do so. In two hospitals in the city of New York, serving substantially the same class, one was very largely supported by the pay of those benefited, while the other hung as a dead weight upon the benevolent public. Those acquainted with the experience of medical charities are distinctly of the opinion that good results come to the patients when the latter are required to pay for what they get in so far as their means permit.

At the Fitch dispensary in Buffalo, where applicants are thoroughly investigated and all who are able to do so are obliged to pay for medicine or for services, or both, the amount of work done is larger than at any other dispensary in the city, although some of the others are decidedly lax in their rules of admission. The explanation of laxness of medical charities in the matter of investigating the applicants that go to them results from, first, the difficulty of making such investigations, and, secondly, from the competitive element as between different institutions. There is a tendency to measure the value of an institution by the gross amount of work, and to gauge the importance of the men connected with it by a similar measure.

The English experience in these matters is very instructive. The Medical Times has said that "the amount of gratuitous work done by the profession in no way raises it in public estimation. It is well known that it is not performed from motives of charity, but from the position that is gained by being attached to a hospital staff and the hope of a good practice accruing therefrom." The British Medical Journal says, "hospitals compete with each other as to the number of patients without regard to the fitness of the cases or the position of the applicants." In the Children's Hospital in London, where the rule was adopted of referring all applicants to the "Charity Organization Society," and where no patients were excluded where the parents were making 30 shillings a week, there was found an abuse rate of 57 per cent. In the London Hospital, when an inspector was appointed for the out-door patients, there was a reduction in twelve months of 7,311 patients, which brought about a saving of some $7,000 in one year to the charity. At this hospital the abuse rate was about 50 per cent.

One of the British writers on the subject complained that physicians practicing among the wealthy classes recommended these people to *always* send their servants to dispensaries for treatment. When I *spoke of* this to a Washington physician his only comment was, "That is my course invariably." Further conversation with him developed the fact that he thought it unadvisable to have any other physician enter the houses of his patients to treat the servants and did not care to treat the latter himself. An attempt was made at two different dispensaries in Washington to prescribe for the superintendent of charities when he called on business, although he made no attempt to appear especially unwell or impecunious.

There are doubtless many reasons which make it necessary that

Washington should have large public expenditures for medical charities; larger, perhaps, in proportion to the population than some other cities. We are without the great endowments which in Philadelphia have freed the city from the necessity of providing any other hospital than that connected with the almshouse. But after all allowances are made I can not but think that if businesslike principles were adopted in providing for the indigent sick of Washington the expenditures in their behalf might be very largely reduced. In Buffalo, where the population is about the same as Washington, the per capita expenditure for medical charities is only 26 cents; a little more than one-third our own. In that city admissions to the hospitals are obtained only from the poor-law officers or the health department, and the agent of the latter department goes through the hospital wards weekly or semimonthly to see what patients paid for by the public can be properly discharged, or, if chronic cases, can properly be remanded to the almshouse or infirmary. The city of Buffalo or the county pays a certain rate per week for the care of the patients it sends to the various hospitals.

In Washington there is no public official having authority to suggest any similar arrangements, or, in fact, any comprehensive change in our system of medical charities. The only bodies having authority in the premises are the Congressional Committees on Appropriations, and as long as they see fit to scatter the appropriations for medical charities in the District of Columbia through various bills and pay them from various funds they alone can alter the condition of affairs here indicated.

Another unfortunate circumstance connected with the disorganized condition of our medical charities is that it is not possible to operate a training school for nurses satisfactorily. The Washington Training School for Nurses has given excellent didactic instruction, but has had no adequate facilities for hospital practice. On the other hand, special hospitals like the Columbia and the Children's hospitals do not give an opportunity for well-rounded development in the work of nursing. It was at one time suggested that arrangements could be made by which nurses might pass through the three hospitals—the Garfield, the Children's, and the Columbia. This would have given unsurpassed training; but the difficulty of allowing nurses to leave an institution where they are at work in order to attend lectures, and certain other causes which almost invariably develop when coöperation is attempted between distinct institutions, prevented the carrying out of this plan. I am told that the Garfield Hospital is adding a new department to its work, not because additional facilities in the new line are needed, but in order to give complete training to the pupil nurses of that institution. The end is commendable, but it seems rather an expensive way of reaching it.

HOSPITALS.

TABLE 3.—*Finance report dispensaries and hospitals for fiscal year ending June 30, 1892.*

	Name of institution. (I.)	Resources and liabilities.		
		Estimated value of property owned. (II.)	Outstanding debts. (III.)	Rate per cent interest. (IV.)
1	Central Dispensary and Emergency Hospital	$72,657.97	$15,000	6
2	Children's Hospital	256,395.00	28,000	5
3	Columbia Hospital for Women	300,000.00	.....	.....
4	Eastern Dispensary	.....	.....	.....
5	Homeopathic Free Dispensary	.....	.....	.....
6	National Homeopathic Hospital	60,000.00	2,660	.....
7	Woman's Dispensary and Hospital	.....	.....	.....
8	Total	689,052.97	45,660	.....

	Name of institution. (I.)	Income from—						
		Balance. (V.)	From loans. (VI.)	Public funds. (VII.)	Endowments. (VIII.)	Pay inmates. (IX.)	All other sources, subscriptions, donations, dues, etc. (X.)	Total. (XI.)
1	Central Dispensary and Emergency Hospital	$7,246.65	$5,000.00	$2,600	.....	.....	$1,955.00	$16,801.65
2	Children's Hospital	295.27	.....	10,000	$5,300.00	.....	4,137.87	19,733.14
3	Columbia Hospital for Women	2,920.47	.....	20,000	.....	$4,444.40	.....	27,364.87
4	Eastern Dispensary	.....	*16.81	450	.....	.....	827.17	1,293.98
5	Homeopathic Free Dispensary	351.24	.....	560	41.50	63.13	914.87	1,930.74
6	National Homeopathic Hospital	141.23	.....	9,000	1,000.00	5,988.49	3,735.47	19,865.19
7	Woman's Dispensary and Hospital	521.93	.....	400	.....	370.79	1,307.12	2,599.84
8	Total	11,476.79	5,016.81	43,010	6,341.50	10,866.81	12,877.50	89,589.41

	Name of institution. (I.)	Expenditures for—							
		Rent. (XII.)	Salaries. (XIII.)	All other forms of maintenance, including repairs. (XIV.)	Permanent improvements, including purchase of real estate. (XV.)	Interest on debts. (XVI.)	Payment of the principal of debts. (XVII)	Total. (XVIII.)	Balance. (XIX.)
1	Central Dispensary and Emergency Hospital	$533.36	$2,184.62	$3,475.95	$7,470.89	$936.24	.....	$14,601.06	$2.200.59
2	Children's Hospital	.....	5,311.48	11,953.95	.....	1,400.00	.....	18,665.43	1,067.71
3	Columbia Hospital for Women	.....	8,262.21	14,994.75	.....	.....	.....	23,256.96	4,107.91
4	Eastern Dispensary	360.00	270.00	663.98	.....	.....	.....	1,293.98	.....
5	Homeopathic Free Dispensary	550.00	453.50	458.87	225.00	.....	.....	1,687.37	243.37
6	National Homeopathic Hospital	.....	4,141.02	8,224.88	2,798.75	139.50	$3,000.00	18,304.15	1,561.04
7	Woman's Dispensary and Hospital	300.00	144.00	1,779.16	.....	.....	.....	2,223.16	376.68
8	Total	1,743.36	20,766.83	41,551.54	10,494.64	2,475.74	3,000.00	80,032.11	9,557.30

TABLE 3.—*Finance report dispensaries and hospitals, etc.*—Continued.

	Name of institution. (I.)	Average annual cost per inmate to District government. (XX.)	Average annual cost per inmate to institution		Per cent of income less balances and earnings contributed by District government. (XXIII.)
			Gross. (XXI.)	Net. (XXII.)	
1	Central Dispensary and Emergency Hospital	.....	.....	.....	57.1
2	Children's Hospital	$140.55	$242.66	$242.66	51.4
3	Columbia Hospital for Women	373.62	434.47	351.44	100.0
4	Eastern Dispensary	.....	.....	.....	35.2
5	Homeopathic Free Dispensary	.....	.....	.....	36.9
6	National Homeopathic Hospital	331.52	455.51	234.92	65.5
7	Woman's Dispensary and Hospital	.....	.....	.....	23.4
	Average	.....	.....	.....	58.8

* Deficit.

TABLE 4.—*Report of work in hospitals done during fiscal year ending June 30, 1892.*

	Name of institution. (I.)	Number of different persons cared for. (II.)	Admitted. (III.)	Discharged.			Number of deaths. (VII.)	Daily average number of patients.		Largest number at one time. (X.)	Smallest number at one time. (XI.)	Surgical operations performed. (XIII.)
				Cured. (IV.)	Improved. (V.)	Unimproved. (VI.)		Free. (VIII.)	Pay. (IX.)			
1	Children's Hospital	307	238	166	40	17	30	71.15	.....	80	52	73
2	Columbia Hospital for Women	606	583	387	92	56	19	*53.53	.....	76	33	138
3	National Homeopathic Hospital	345	328	202	72	22	14	15.10	12.05	45	2	59
4	Total	1,258	1,149	755	204	95	63	†151.83	.....	.....	.....	270

* Including pay patients.
† Including pay patients from Columbia and National Homeopathic Hospitals.

Table No. 3 shows the receipts and expenditures of the hospitals and dispensaries of the District coming under the supervision of the superintendent of charities during the year ending June 30, 1892. Table No. 4 gives the work of the hospitals for the same period. It will be seen that they receive from the public funds $43,010, from endowments $6,341.50, from pay inmates $10,866.81, and from contributions and subscriptions and sundry sources $12,877.50. The per cent of income, less earnings, contributed by the District government was 58.8. The salaries paid by all the institutions amounted to $20,766.83.

The number of different persons cared for by the three hospitals was 1,258. The daily average number of patients was 151.83. Surgical operations performed, 270.

The Columbia Hospital for Women and Lying-in Asylum.—The managing corporation of this institution was changed at the last session of Congress from a private to a public corporation, by the insertion in the appropriation bill of a proviso, that as vacancies occur among the trustees, other than members of Congress, they shall be filled by the District Commissioners. As the trustees hold for life this proviso does not at all effect the present incumbents, and will probably not practically change the character of the corporation for some time to come.

During the past year the income from pay patients amounted to $4,444.40. This is a decided increase from the preceding year, when it was only $2,574.71. This indicates an improvement in the estimation in which this hospital is held by that part of the public able to pay for accommodations and is in so far satisfactory. It may be doubted, however, whether or not the abolition of the pay-patient department would not result in a saving in the expenses of administration greater than the amount received from pay patients. But to receive pay patients at a low rate gives very satisfactory service to a class that needs hospital advantages, but could not properly ask for gratuitous service. The average cost of a patient at this hospital to the District government for the year was $373.62. The gross cost per patient to the institution was $434.47. The net cost $351.44. This shows a marked falling off from the year before, when the gross cost per patient was $636.50 and the net cost $563.23. This results from an increased number of patients. The daily average for the last year was 53.53, whereas for the year before it had been only 35.14.

In an institution giving the very special and expensive service afforded by the Columbia Hospital it does not appear that the present annual cost per patient can be considered in any wise excessive.

On the maternity side the number of births was 260. There are many questions connected with the administration of the maternity work of great difficulty and which should receive the most careful consideration in order that the wisest thing may be done for illegitimate children and their mothers. It is proper in an institution like the Columbia Hospital, where it is desirable that the place should be a proper one for the wives of working men and others to go during confinement, that no woman should be received a second time who has not been married. The almshouse hospital might properly be the one to which delinquents should be referred at the second offense.

As the Columbia Hospital is now a public institution, its property owned by the Government and the managing board a public corporation, it is proper that its annual report should be printed in full, and will be found as I 5 in the appendix to the Commissioner's roport.

I recommend the appropriation of the usual sum of $20,000 for the use of this institution during the year ending June 30, 1894.

The Children's Hospital.—The tabulated facts regarding this institution will be found in Table 3, line 2, and Table 4, line 1. From this it appears that the Children's Hospital received from endowments $5,300 and from subscriptions, donations, etc., $4,137.87. The per cent of income, less balances and earnings contributed by the District government, was 51.4, a reduction from the preceding year, when it was 56 per cent. No pay patients are received. The daily average number of patients was 71.15. The largest number at one time, 80. Seventy-three surgical operations were performed. The cost to the District government for a year's service rendered to a single patient was $140.55. The cost per patient to the institution was $242. 66.

There were 30 deaths in the institution during the year, a rather high rate of mortality, but not higher than is common in the hospitals for the young. It resulted in part from receiving children having certainly fatal diseases, such as consumption. The tendency of some hospitals to avoid receiving such cases is one not to be commended, as a hospital should be a comfortable place for the poor to die in as well as to be cured in. Therefore a high death rate, resulting from a willingness to receive patients when the prognosis is death, should in nowise prejudice the institution with an enlightened public,

Another cause contributing to the high mortality can not be so satisfactorily explained. This is the presence in the institution of contagious diseases, such as diphtheria and scarlet fever. While the hospital has good facilities for isolating this class of cases, yet their presence is always a hindrance to the best work. The only children refused admission during the year were such as came at times when the presence of contagious diseases made it unsafe to receive them. The experience of this institution adds another to the many proofs that have already accumulated of the great need that there is for a contagious diseases hospital in the District.

I recommend the usual appropriation of $10,000 for the Children's Hospital.

The National Homeopathic Hospital Association.—The tabulated facts regarding this institution will be found in Table 3, line 6, and Table 4, line 3, and the accounts of its dispensary work in Table 5, line 6. From these tables it will be seen that the hospital provided for a daily average of 15.1 free patients and 12.05 pay patients. The amount realized from the pay patients' department was $5,998.49. The cost to the District government of providing for one patient for one year in this institution was $331.52. The gross cost to the institution for a patient for the year was $455.51; the net cost to the benevolent $234.92. The per cent of income, less earnings, contributed by the District government was 65.5, a very considerable decrease from the preceding year, when it was 83 per cent.

The improvements for which an appropriation was asked at the last session of Congress were made, although public aid was not granted as requested. These give the hospital much better facilities, especially for surgical work and for accommodating the pupil nurses resident in the institution.

I recommend an appropriation of $7,000 for maintenance.

The Central Dispensary and Emergency Hospital.—The tabulated facts regarding this institution will be found in Table 3, line 1, and Table 5, line 1. It is, however, an institution whose work can not be as fully represented in a tabular statement as that of some of the others; especially is this true during the last year, when it has developed greatly and changed considerably. On the dispensary side it will be treated under the head of dispensaries. On the hospital side it has done much more than any previous year in caring for emergency cases. The purpose of this work for emergency cases is to furnish immediate help in cases of injury, accident, or any sudden illness which are brought to it at any time, day or night, and without any question as to the individual ability to pay or any other consideration. The only question is, does the person require immediate surgical or medical aid? During the past year 1,363 emergency cases were provided for. Seventy-three certificates were issued on request of Sanitary Officer Frank, 212 teeth were extracted, and other miscellaneous work done. Three deaths occurred during the year, one in thirty-six and two within twenty-four hours after admission. It is not the policy of the institution to retain any case longer than necessary in order to render the most efficient service in emergency. All cases are passed on as soon as possible to the hospitals that can most appropriately receive them. In some of its aspects the work of this department is closely analogous to that which in other cities is performed by the police department, or at least which is attended to at the police stations, and here the police department concurs with me in saying that the service rendered by the hospital is absolutely indispensable.

The new building at the corner of Fifteenth street and Ohio avenue has only been occupied during the last months of the fiscal year for which this report is made. It was anticipated that on entering the new building the expenses for maintenance would be greatly increased, and an appropriation of $6,000 was asked of Congress, but only $4,500 was granted. The result has been that for the expenses of moving and the expenses incident to the larger work done in the new building the trustees have been compelled to use up some of the money received from the sale of the old property, and even after expending their capital in this way there will be a deficiency at the end of the fiscal year. This does not result from the fact that the managers have been derelict in their efforts to obtain money from contributors, since the report shows that during the last fiscal year only 57.1 per cent of their income was received from the public funds as against 75 per cent for the year before. One item that has added considerably to the cost of operating the institution, and that will be a constant charge upon its revenue hereafter, is the maintenance of an emergency ambulance prepared to go at a moment's notice to the scene of any accident. This ambulance is equipped with all the necessary surgical appliances and a competent surgeon goes with it on each trip. This ambulance is at the call of any member of the police force, and supplements in a very satisfactory way the ambulance service provided by the Metropolitan police.

An itemized account of the expenditures incident to the economical operation of the hospital as it now stands indicates that it can not be managed on a public subvention of less than $10,000 a year. It seems unnecessary here to insert this itemized statement of necessary expenditures, but it can be readily furnished either to the Commissioners or to the Congressional committees, if desired.

Besides the expenses of operation the hospital also has some expenses connected with its indebtedness. The sum of $15,000 has been borrowed at 6 per cent interest. It seems inexpedient that this interest charge should remain a permanent draft upon the resources of the institution, but inasmuch as the District has already contributed more than $40,000 for purposes of purchasing real estate and erecting the building it seems to be unjust that the debt should be paid by the District government unless the District government has the title to the property. To be sure the money which has been paid to the hospital for purposes of construction constitutes a lien upon the property which must be satisfied if that property is ever diverted to other purposes, but where the amount contributed by the Government is so large, and where the necessity of continued thorough coöperation between the institution and the public authorities is so imperative as in this case it is not unjust that the stipulation indicated should be made.

The private managers that have done so much to make this enterprise the useful and absolutely indispensable institution it now is, certainly deserve well of the community, and nothing should be done that would make them feel that the fruits of their labor was being arbitrarily appropriated by the Government; but some of them at least appreciate the force of the considerations urged, and are not averse to having the title of the property transferred to the District.

I recommend the following appropriations for the Central Dispensary and Emergency Hospital for the year ending June 30, 1894: For maintenance, $10,000; for the payment of the debt, $15,000, provided that the title to the real estate owned by the corporation shall be vested in the District in trust for the purposes of the hospital.

The Freedmen's Hospital.—As this is the first time that the Freedmen's Hospital has been estimated for by the District authorities, as the work for the last fiscal year was completed before it was known that this new arrangement was to be made, and as the hospital by previous legislation is under the Department of the Interior, no attempt is made in this report to give an account of its work. Neither have I tried in any manner to weigh the arguments for and against the estimates made by the surgeon in charge, Dr. C. B. Purvis. He understands the needs and work of the hospital as I can not, and I have therefore simply approved his estimates and leave the discussion of them until they come to be considered by the Congressional committee. By that time I hope to be more fully informed as to the institution and to be able to answer such questions as will suggest themselves in fixing the appropriations. The justice of charging this institution to the District revenues may be questioued. The class which it serves are those for whom the Federal Government might very properly provide, as it has done in years past, and I should think it proper that the institution be returned to the sundry civil bill, from which it was taken at the last session of Congress. If the institution is to remain chargeable to the District revenues its management should apparently be made a part of the District government.

In view of the foregoing considerations and in accordance with Dr. Purvis's statement of the needs of the Freedmen's Hospital, I recommend the appropriation of the following sums for the fiscal year ending June 30, 1894: For maintenance, $54,525; for erecting a coal house, $800; for erecting a new brick ward, $30,000.

OUT-PATIENT WORK.

Table No. 5, submitted herewith, gives a view of the out-patient work in the city during the fiscal year ending June 30, 1892. This embraces no statement regarding the work of the physicians to the poor, an account of which will be found in the report of the health officer. The table shows that at the seven dispensaries, either operating independently or connected with hospitals under the supervision of the superintendent of charities, 17,823 cases were treated and some 64,247 prescriptions were filled. The account of the total number of visits by all patients to the several dispensaries was only kept during the last six months, but during this time there were 21,747 such visits. Somewhat more than two-thirds of the cases treated were colored. The separation into surgical and medical cases, called for by the table, is not of very great importance, and where a dispensary did not make this distinction, or made it imperfectly, all cases have been included under the head of medical. The total cost of dispensary work by itself can not be ascertained, as three of the dispensaries are operated in connection with hospitals and the accounts are not so kept that the items can be separated. The finances of the dispensaries working independently will be found in Table 3.

TABLE 5.—*Report of work done by dispensaries during fiscal year ending June 30, 1892.*

	Name of institution. (I.)	Surgical cases.				
		White.		Colored.		Total. (VI.)
		Male. (II.)	Female. (III.)	Male. (IV.)	Female. (V.)	
1	Central Dispensary and Emergency Hospital..	527	97	880	229	1,733
2	Children's Hospital.....	47	36	85	45	213
3	Columbia Hospital for Women	.....	.....	.....	.....	.....
4	Eastern Dispensary.....	11	16	40	87	154
5	Homeopathic Free Dispensary.....	16	11	22	16	65
6	National Homeopathic Hospital Association...	.....	.....	.....	.....	.....
7	Woman's Dispensary and Hospital	27	77	84	408	596
8	Total	628	237	1,111	785	2,761

	Name of institution.	Medical cases.				
		White.		Colored.		Total. (XI.)
		Male. (VII.)	Female. (VIII.)	Male. (IX.)	Female. (X.)	
1	Central Dispensary and Emergency Hospital..	592	602	1,148	1,826	4,168
2	Children's Hospital.....	476	380	1,108	916	2,880
3	Columbia Hospital for Women.....	.....	.....	.....	.....	.....
4	Eastern Dispensary	108	148	222	544	1,022
5	Homeopathic Free Dispensary.....	389	915	366	1,074	2,744
6	National Homeopathic Hospital Association...	.....	.....	.....	.....	.....
7	Woman's Dispensary and Hospital	26	125	106	980	1,237
8	Total	1,591	2,170	2,950	5,340	12,051

	Name of institution.	Total medical and surgical cases.			Total number of visits by all patients to dispensary (for 6 months). (XV.)	Prescriptions compounded. (XVI.)
		White. (XII.)	Colored. (XIII.)	White and colored. (XIV.)		
1	Central Dispensary and Emergency Hospital..	1,818	4,083	5,901	10,946	36,380
2	Children's Hospital.....	939	2,154	3,093	2,262	5,709
3	Columbia Hospital for Women	560	1,001	1,561	1,873	4,291
4	Eastern Dispensary.....	287	893	1,180	956	2,816
5	Homeopathic Free Dispensary	1,331	1,478	2,809	3,628	7,327
6	National Homeopathic Hospital Association ..	281	965	1,246	1,236	2,925
7	Woman's Dispensary and Hospital	255	1,578	1,833	846	4,799
8	Total	5,471	12,152	17,823	21,747	64,247

It has already been indicated that the volume of work done by a dispensary forms no just criterion of its public value, but in Washington we have no investigating agency that can be appealed to to inquire into the cases of applicants for medical relief. I had hoped that an arrangement might be made by which the work of the physicians to the poor could be consolidated with that of the dispensaries. The results I had hoped would be to save a good deal of duplicate work and to give the management of the dispensaries an opportunity to find out more about those who applied to them for treatment than is now possible. The Central Dispensary offered to provide an additional resident physician, who, in return for the privilege of residing at the dispensary, should do the work of two physicians to the poor in the adjacent districts. The additional cost to the dispensary of such a course would only have been about $300 a year, and a suitable man offered himself for the work. This would have resulted in the saving

to the District of $660 per year, and had similar arrangements with other institutions been made the saving might have been proportionately large; but the opposition of the health officer and the delay of the Commissioners in deciding the matter permitted the opportunity to pass by, and the experiment was not tried.

The Central Dispensary.—This institution last year treated in its dispensary work a total of 5,901 cases, as against 6,939 the year before. The falling off resulted in part from the disorganization which attended moving to rented quarters and then to the new building. The number of prescriptions the last year was 36,380, as against 31,758 the year before.

The Eastern Dispensary.—Total number of cases treated 1,180, as against 1,004 the previous year, and 2,816 prescriptions as against 2,915 the year before. This dispensary attempts to consider more carefully than other institutions the capacity of the applicant to pay for treatment, and those found able are not treated gratis.

The Lenman Homeopathic Dispensary and Emergency Hospital.—This is the institution which last year appeared under the name of the Homeopathic Free Dispensary. It is now located on Massachusetts avenue and K street, in a new building well adapted for the purpose it is designed to serve. The building has been paid for by the issuing of bonds, which constitute a mortgage indebtedness upon the property. Last year an earnest application was made for money to aid in the erection of this building and its equipment, but it seemed to me then, as it does now, that the interests of the District would be better served by supporting with entire adequacy one emergency hospital and fitting it fully for its work than by subsidizing two struggling institutions. The number of cases treated at this institution the last year was 2,809, as against 2,504 the year before, although its work was much interfered with by moving from old quarters to new. The number of prescriptions during the past year was 7,327, as against 6,469 the year previous.

The Woman's Dispensary.—This also is a dispensary that is gradually developing into a hospital, notwithstanding the fact that no public aid was recommended or granted to facilitate this development. The hospital side of the work has been carried on quite successfully during part of the fiscal year for which this report is made. The finances of the dispensary, so far as they can be separated from the hospital department, can be found in Table 3, line 7, and the account of the work done in Table 5, line 7. The per cent of income less earnings contributed by the District was only 23.4. This is the one institution where a small charge is made for the medicines. Those connected with the dispensary think that the patients value the service more, indeed profit by it more, if they pay something in return for it. The number of cases treated was 1,853, and the number of prescriptions 4,799, as against 1,609 cases and 4,134 prescriptions for the preceding year.

FUND FOR THE RELIEF OF THE POOR.

The manner in which this fund was apportioned by the Commissioners during the fiscal year for which this report is made is indicated below. The independent dispensaries receive nothing except through this fund, and from it are also paid the physicians to the poor and the corporation druggists. The appropriation for the current year amounts only to $14,000, but, inasmuch as the Central Dispensary is given an appropriation in its own name, this amount has been sufficient to permit a slight increase of the subsidies given the dispensaries.

The action of the Commissioners, based partly upon my recommendations, and partly upon recommendations made by other District officials, resulted in the following use of this fund:

Physicians to the poor	$7,200
Medicines for the poor and printing prescriptions	3,700
Central Dispensary and Emergency Hospital	2,400
Homœopathic Dispensary	430
Eastern Dispensary	450
Woman's Dispensary	400
Aged Women's Home	300
Mission School for Cookery	100
Associated Charities	250
Home for Incurables (special)	50
Women's Union Chistian Association	300
Department of the Metropolitan Police (to distribute to the poor)	400
Total	16,000

Inasmuch as the physicians to the poor are a part of the Department of the Health Office, and it is not well to have one municipal officer making suggestions about another officer's department, I should prefer that a specific appropriation be made for these physicians, and I be no longer asked to assume the responsibility of estimating for them. However, the matter is of no very great importance, and I recommend the same appropriation as for the current year, viz:

For the relief of the poor, $14,000.

A CONTAGIOUS DISEASES HOSPITAL.

In my last report I said that the next important addition that should be made to the system of medical charities in the District was a hospital for the treatment of contagious diseases. During the first session of the Fifty-second Congress there was officially referred to me a proposed item for the sundry civil bill which appropriated $31,000 for the Daisy Chain Hospital in the District of Columbia, and my hearty approval was given to the insertion of this item. It was approved by the Senate, but thrown out in conference.

In preparing this present report, I asked the Commissioners if they wished me to estimate for a contagious diseases hospital, or if they thought this a matter that should be left to the Health Officer. They decided that it was a matter in which the Health Officer should take the initiative. In some way or other, and that soon, such an institution should be provided for.

CHILD-SAVING WORK IN THE DISTRICT.

Table No. 6 gives the result of a census of the institutions for children receiving District subsidies. The date when the census was taken at each institution is given in the first column of the following table:

TABLE 6.—*Population of institutions for children, including industrial and reformatory.*

	Name of institution.	Date of census.	Inmates.						
			Total number of children.	Children.					
				Birthplace.		On whose request admitted.			
				District of Columbia.	Not in District of Columbia.	From other institutions.	Public official.	Relative.	Others.
1	Church Orphanage of St. John's Parish	7-19-'92	84	55	15	14	8	31	25
2	German Orphan Asylum	6- 2-'92	42	27	13	.....	15	22	2
3	National Association for Relief of Destitute Colored Women and Children.	6-30-'92	118	77	27	22	24	63	8
4	National Association for Care of Colored Foundlings.	7- 6-'92	17	16	.....	1	2	14	.....
5	St. Ann's Orphan Asylum	7-29-'92	88	79	9	2	4	70	12
6	Washington Hospital for Foundlings	7-29-'92	13	10	1	.....	2	6	4
7	Home for Friendless Colored Girls	7-11-'92	7	6	1	.....	1	6	.....
8	Association for Works of Mercy	7-11-'92	19	10	10	6	1	10	4
9	House of the Good Shepherd	7-13-'92	55	49	13	7	22	27	12
10	Industrial Home School	7-14-'92	98	69	26	7	36	14	32
11	St. Rose's Industrial School	7-28-'92	70	31	41	*59	.....	9	4
	Total	.....	611	429	156	118	115	272	103

	Name of institution.	Inmates.										
		Children.										
		Age.					Length of time in institution.					
		Under 1 year.	1 to 3 years.	4 to 8 years.	9 to 14 years.	15 to 21 years.	1 year or less.	2 years.	3 years.	4 years.	5 years.	Over 5 years.
1	Church Orphanage of St. John's Parish	....-	1	34	42	7	20	12	14	8	10	20
2	German Orphan Asylum	.....	1	21	16	4	18	9	2	2	4	7
3	National Association for relief of Destitute Colored Women and Children.	.....	3	53	60	1	33	22	21	13	8	21
4	National Association for Care of Colored Foundlings.	10	6	1	.....	.....	16	1	....	....	....	....
5	St. Ann's Orphan Asylum	16	21	47	4	.....	34	20	10	7	6	11
6	Washington Hospital for Foundlings	6	7	.....	.....	.....	8	5	....	....	....	....
7	Home for Friendless Colored Girls	....-	1	4	2	.....	6	....	....	1	....	....
8	Association for Works of Mercy	.....	.....	.....	6	13	13	4	....	1	1	....
9	House of the Good Shepherd	.....	.....	5	15	35	32	11	4	4	2	2
10	Industrial Home School	.....	.....	29	68	2	33	34	12	7	8	4
11	St. Rose's Industrial School	.....	.....	.....	3	67	12	14	20	11	7	6
	Total	32	40	194	216	129	225	132	83	54	46	71

* From other institutions in the District, 20; from other institutions outside of the District, 39.

TABLE 6.—*Population of institutions for children, etc.*—Continued.

	Name of institution.	Inmates.			Employés boarded and lodged during the year.	Persons wholly supported in return for services.
		Over 21 years of age.				
		Number.	Average age.	Average length of time in institution.		
1	Church Orphanage of St. John's Parish	.....	.....	.....	6	1
2	man Orphan Asylum	.....	.....	.....	2	.....
3	National Association for relief of Destitute Colored Women and Children.	10	79.1	5.04	9	.....
4	National Association for Care of Colored Foundlings.	.....	.....	.....	7	.....
5	St. Ann's Orphan Asylum	5	.....	.....	10	11
6	Washington Hospital for Foundlings	.....	.....	.....	12	.....
7	Woman's Union Christian Association	.....	.....	.....	1	.....
8	Association for Works of Mercy	2	31	3	4	1
9	House of the Good Shepherd	13	29.66	4.53	2	13
10	Industrial Home School	.....	.....	.....	12	.....
11	St. Rose's Industrial School	2	34.5	4.5	2	10
	Total	32	.....	.....	67	36

It will be seen that the census was taken during midsummer, directly after many of the children had been placed out and before the institutions had filled up again, as they do in the fall, yet the number of dependent children was shown to be 611, of which 429 were born in the District, 156 outside the District, and of the remainder the place of birth was unknown. This does not show a larger proportion of births outside the city in which the institutions are located than in corresponding institutions of other cities. The most direct example of importation from outside the District was at St. Rose's Industrial School, where 39 out of a total of 70 have been received from institutions outside the District.

It will be noticed that only 115 have been received at the request of the public officials, either the officer of the Humane Society or any other person connected with the police force or the courts; 272 were admitted on the request of relatives, usually the parents, and 103 on the request of other persons, charitably interested in the cases. Considering the children by ages, we find 32 to have been under 1 year of age, 40 between 1 and 3, 194 between 4 and 8, 216 between 9 and 14, and 129 between 15 and 21 years. A census taken at a different time of year would doubtless have shown a larger per cent of children under 1 year of age, as the death rate among this class had been very high during the hot weather of the preceding June. Forty-six of the children have been in the institutions five years, and 71 have been in the same institution over five years. As 118 had come to the institution in which they were found from some other institution, it seems likely that a considerable number of the children in the District remain in the institutions for longer periods than five years. It should not be forgotten that five years or more of institution life is a dangerous experience, threatening the habits of independence and the energy of the child thus confined within brick walls or narrow play grounds, and compelled to associate with others who have probably inherited like independent instincts with himself.

In the institutions for children there were 32 persons over 21 years of age being cared for at the time the census was taken. These were

in part aged dependents cared for as a branch of work distinct from that for the children, and in part they were women at the House of Mercy, at the House of the Good Shepherd, or St. Rose's Industrial School, who seemed to need custodial care and the protection which institution life affords. There were in the eleven institutions 67 salaried employés boarded and lodged during the year, and 36 persons, Sisters and others, entirely supported in return for their services, but receiving no personal salary.

To some it might seem that more than a hundred workers for taking care of about 600 children was a large number. It will be noticed that the proportion of attendants is especially large in those institutions which care for very young children, and it is well known to those acquainted with such matters that the ratio of attendants to beneficiaries must necessasily be large in these cases. In visiting the institutions and becoming somewhat acquainted with the personnel of the house staff, I have been struck by the large service that is frequently rendered for small pay. Both on the part of those who receive salaries and those who do not there is a great measure of personal self-sacrifice.

The census of the several institutions was taken by the superintendent in person, and in many cases he saw and talked with each child. A card was filled out for each case, and these are on file at the superintendent's office, so that if hereafter it is desirable to recombine the facts in some new way, the original data are at hand for doing so. Some of the facts learned and recorded on these case cards it would be improper to give in a printed report, at least in any way that would make it possible to identify the institutions referred to; but it is proper enough to give some additional totals. Of the 611 children, 32 were afflicted with some nervous trouble, epilepsy, paralysis, or some grade of feeble-mindedness, ranging all the way from idiocy up to those described simply as "very dull." None are included in this number (32) except those who had some marked mental defect or nervous disease. Besides these, 92 of the children were markedly defective or diseased. Not many cripples were found, but many afflicted with severe forms of scrofula and other varieties of practicably incurable blood poisoning. Thus it will be seen that 1 out of 6 of the children in our institutions is unwell mentally or physically. This, of course, does not include those that are suffering from such ailments common to institution life, as mild skin disease, sore eyes, etc. It should be said that the institutions are for the most part in nowise responsible for the sickly condition of the children, but that, on the other hand, the tendency of a family to sickness is often responsible for the dependency of a child. The largest proportion of feeble-minded or nervously diseased cases is apt to appear in institutions for wayward girls.

An inquiry was made regarding the parentage of the children, but the returns were not sufficiently complete to make it worth while to tabulate them. It was ascertained that in some of the institutions the parents of more than half the children were one or both of them of distinctly bad character. Many of the children of drunken parents were described as "not up to par," though it could not be said that they were physically or mentally diseased.

SUBSIDIZED INSTITUTIONS FOR CHILDREN.

In Table 7 is found a statement of the financial operations of institutions for children other than reformatory or industrial for the fiscal year ending June 30, 1892. In Table 8 the facts are given for the re-

formatory and industrial institutions. Tables 9 and 10 give some account of the work of these institutions for the same year. In the institutions for children it will be seen that the average cost of an inmate to the District government for one year was $82.34; the gross cost to the institution was $98.68; the net cost to the institution was $93.51. The per cent of income, less balances, earnings, and loans contributed by the District government was $68.05. In some of the institutions the cost per annum seems to be abnormally low, a fact usually explained by the receipt of many contributions in kind which do not appear in the treasurer's book.

TABLE 7.—*Finance report of institutions for children for fiscal year ending June 30, 1892.*

	Name of institution. (I.)	Resources and liabilities.		
		Estimated value of property owned. (II.)	Outstanding debts. (III.)	Per cent of interest. (IV.)
1	Church Orphanage of St. John's Parish	$50,000	$7,500	6
2	German Orphan Asylum	60,600	.....	.....
3	Home for Friendless Colored Girls	.....	.....	.....
4	National Association for Relief of Destitute Colored Women and Children	50,000	.....	.....
5	Home for Colored Foundlings	.....	.....	.....
6	St. Ann's Infant Orphan Asylum	150,000	.....	.....
7	Washington Hospital for Foundlings	86,330	.....	.....
	Total	396,930	7,500	.....

	Name of institution.	Income from—						
		Balance. (V.)	From loans. (VI.)	Public funds. (VII.)	Endowments. (VIII.)	Pay inmates or work of inmates. (IX.)	All other sources, subscriptions, donations, dues, etc. (X.)	Total. (XI.)
1	Church Orphanage of St. John's Parish	$3,655.74	$4,500.00	$2,500.00	$922.76	.....	$6,138.39	$17,716.89
2	German Orphan Asylum	1,269.19	.....	6,000.00	150.00	$50.00	4,708.76	12,177.95
3	Home for Friendless Colored Girls	.....	.....	320.00	.....	49.25	256.38	625.63
4	National Association for Relief of Destitute Colored Women and Children	.....	.....	10,000.00	.....	.....	.....	10,000.00
5	Home for Colored Foundlings	.....	652.66	*2,000.00	.....	26.00	.....	2,678.66
6	St. Ann's Infant Orphan Asylum	50.00	650.00	7,079.17	531.31	1,003.50	1,501.50	10,815.48
7	Washington Hospital for Foundlings	1,237.08	.....	6,000.00	.....	.....	1,380.23	8,617.31
	Total	6,212.01	5,802.66	33,899.17	1,604.07	1,128.75	13,985.26	62,631.92

*Overdraft from funds from National Association for Relief of Destitute Colored Women and Children.

TABLE 7.—*Finance report of institutions for children, etc.*—Continued.

	Name of institution.	Expenditures for—							
		Rent. (XII.)	Salaries. (XIII.)	All other forms of maintenance, including repairs. (XIV.)	Permanent improvements including purchase of real estate. (XV.)	Interest on debts. (XVI.)	Payment of the principal of debts. (XVII.)	Total. (XVIII)	Balance. (XIX.)
1	Church Orphanage of St. John's Parish	.....	$1,625.00	$3,298.60	$8,784.89	$295.96	2,000.00	$16,004.45	$1,712.44
2	German Orphan Asylum	.....	1,236.90	5,104.18	1,881.60	.....	.....	8,222.68	3,955.27
3	Home for Friendless Colored Girls	$75.00	110.00	242.18	.....	.....	185.17	612.35	13.28
4	National Association for Relief of Destitute Colored Women and Children	.....	2,815.32	6,217.01	315.00	.....	.....	9,347.33	*652.67
5	Home for Colored Foundlings	420.00	987.89	1,270.77	.....	.....	.....	2,678.66	.....
6	St. Ann's Infant Orphan Asylum	.....	3,574.52	6,700.93	.....	500.00	.....	10,775.45	40.03
7	Washington Hospital for Foundlings	.....	2,988.52	3,956.45	536.51	.....	.....	7.481.48	1,135.83
	Total	495.00	13,338.15	26,790.12	11,518.00	795.96	2,185.17	55,122.40	7,509.52

	Name of institution.	Average annual cost per inmate to District government. (XX.)	Average annual cost per inmate to institution.		Per cent of income, less balances and earnings contributed by District government. (XXIII.)
			Gross. (XXI.)	Net. (XXII.)	
1	Church Orphanage of St. John's Parish	$29.94	$58.97	$58.97	26.2
2	German Orphan Asylum	137.93	145.77	144.62	55.3
3	Home for Friendless Colored Girls	27.23	36.36	32.16	55.5
4	National Association for Relief of Destitute Colored Women and Children	79.32	71.65	71.65	100
5	Home for Colored Foundlings	126.82	169.85	168.21	100
6	St. Ann's Infant Orphan Asylum	67.65	98.18	88.59	77.7
7	Washington Hospital for Foundlings	226.91	262.65	262.65	81.3
	Total	82.34	98.68	93.51	68.5

* Advanced to Colored Foundling Home in excess of the appropriations for that branch of the work. No real balance for this institution.

TABLE 8.—*Finance report of industrial reformatory institutions for fiscal year ending June 30, 1892.*

	Name of institution. (I.)	Resources and liabilities.		
		Estimated value of property owned. (II.)	Outstanding debts. (III.)	Per cent of interest. (IV.)
1	House of Mercy	$24,000	.....	.....
2	House of the Good Shepherd	60,000	$25,000	5
3	Industrial Home School	100,000	.....	.....
4	St. Rose's Industrial School	114,000	62,000	.....
	Total	298,000	87,000	.....

	Name of institution. (I.)	Income from—					
		Balance. (V.)	Public funds. (VI.)	Endowments. (VII.)	Pay inmates or work of inmates. (VIII.)	All other sources, subscriptions, donations, dues, etc. (IX.)	Total. (X.)
1	House of Mercy	.....	$3,000.00	$25	$145.70	$874.39	$4,045.09
2	House of the Good Shepherd	$101.04	3,096.74	.....	2,631.14	729.47	6,558.39
3	Industrial Home School	86.87	11,500.00	.....	979.70	28.00	12,594.57
4	St. Rose's Industrial School	1,881.78	2,500.00	.....	3,500.00	600.00	8,481.78
	Total	2,069.69	20,096.74	25	7,256.54	2,231.86	31,679.83

	Name of institution. (I.)	Expenditures for—						
		Salaries. (XI.)	All other forms of maintenance, including repairs. (XII.)	Permanent improvements, including purchase of real estate. (XIII.)	Interest on debts. (XIV.)	Total. (XV.)	Balance. (XVI.)
1	House of Mercy	$642.87	$2,290.40	.....	.....	$2,933.27	$1,111.82
2	House of the Good Shepherd	.....	5,289.22	.....	$1,250.00	6,539.22	19.17
3	Industrial Home School	4,466.88	7,973.72	.....	.....	12,440.60	153.97*
4	St. Rose's Industrial School	956.00	7,144.32	$190.88	139.58	8,430.78	51.00
	Total	6,065.75	22,697.66	190.88	1,389.58	30,343.87	1,335.96

	Name of institution. (I.)	Average annual cost per inmate to District government. (XVII.)	Average annual cost per inmate to institution.		Per cent of income less balances and earnings contributed by District government. (XX.)
			Gross. (XVIII.)	Net. (XIX.)	
1	House of Mercy	$144.58	$141.36	$134.34	76.97
2	House of the Good Shepherd	56.56	96.61	48.55	80.97
3	Industrial Home School	114.54	123.91	114.15	99.87
4	St. Rose's Industrial School	30.49	98.78	56.10	80.6
	Total	77.92	111.53	83.39	89.9

* Balance, $24.47 less than reported; deduced from report of income and expenditures.

TABLE 9.—*Report of work done in institutions for children during fiscal year ending June 30, 1892.*

	Name of institution. (I.)	Daily average number of inmates. (II.)	Largest number at one time. (III.)	Smallest number at one time. (IV.)	Number of different persons cared for. (V.)	Number refused admission. (VI.)	Number admitted. (VII.)	Number of deaths. (VIII.)
1	Church Orphanage of St. John's Parish	83.5	86	81	97	.....	12	.....
2	German Orphan Asylum	43.5	47	41	53	.....	16	.....
3	Home for Friendless Colored Girls	11.75	16	5	21	.....	16	.....
4	National Association for Relief of Destitute Colored Women and Children	126.07	133	118	145	1	29	4
5	Home for Colored Foundlings	15.77	23	13	64	8	52	37
6	St. Ann's Infant Orphan Asylum	104.65	115	75	212	8	128	78
7	Washington Hospital for Foundlings	26.44	42	17	105	5	73	66
8	Total	411.68	.....	.....	697	22	326	[1]85

	Name of institution. (I.)	Number leaving the institution.				
		Placed in another institution. (IX.)	Given to relatives or friends. (X.)	Indentured, apprenticed, or situation provided. (XI.)	Adopted. (XII.)	Total. (XIII.)
1	Church Orphanage of St. John's Parish	4	11	.....	.....	15
2	German Orphan Asylum	.....	7	3	.....	10
3	Home for Friendless Colored Girls	.....	1	2	5	8
4	National Association for Relief of Destitute Colored Women and Children	1	10	10	1	22
5	Home for Colored Foundlings	1	5	.....	4	10
6	St. Ann's Infant Orphan Asylum	10	39	.....	3	52
7	Washington Hospital for Foundlings	1	4	.....	11	16
	Total	17	77	15	24	133

TABLE 10.—*Report of work done in industrial and reformatory institutions during the fiscal year ending June 30, 1892.*

	Name of institution. (I.)	Daily average number of inmates. (II.)	Largest number at one time. (III.)	Smallest number at one time. (IV.)	Number of different persons cared for. (V.)	Number refused accommodations. (VI.)	Number admitted. (VII.)	Number of deaths. (VIII.)
1	Association for Works of Mercy	20.75	26	17	40	2	16	.....
2	House of the Good Shepherd	54.75	64	47	93	1	44	1
3	Industrial Home School	100.4	103	100	155	21	45	1
4	St. Rose's Industrial School	82	92	72	106	27	21	.....
	Total	257.9	.....	.....	394	51	126	2

	Name of institution. (I.)	Number leaving the institution.				
		Placed in another institution. (IX.)	Given to relatives or friends. (X.)	Escaped. (XI.)	Indentured, apprenticed, or situation provided. (XII.)	Total. (XIII).
1	Association for Works of Mercy	1	7	2	2	12
2	House of the Good Shepherd	3	14	3	4	24
3	Industrial Home School	3	25	6	20	54
4	St. Rose's Industrial School	5	8	.....	13	26
	Total	12	54	11	39	116

From Table 9it appears that the daily average number of inmates in the institutions for children was 411.68 and the number of different children cared for during the year was 697. The number admitted during the year was 326; the number who were placed in other institutions, 17; the number returned to relatives or friends, 77; the number indentured, apprenticed, or bound out was 15; the number given in adoption was 24; making a total of departures of 133. The number of deaths during the same time was 185, showing that of the whole number of children who left the several institutions during the fiscal year considerably more than one-half departed by the gate of death. An examination of the table, however, shows that this high proportion of deaths to departures is due entirely to the influence of the three institutions that care for destitute infants. In these the number of children that died was nearly three times the number otherwise disposed of, and were we to eliminate the number returned to relatives or friends, and therefore presumably only received for a short time, the proportion would be still more striking.

In the industrial institutions and in all those caring only for children over 3 years of age the death rate is very low. In some of the institutions there are no deaths at all during the year and very little serious illness. This agrees with the experience of other States. Indeed, it is probably true that the mortality among institution children between the ages of 3 and 16 is considerably lower than among children of the same age in ordinary life.

In the industrial and reformatory institutions the average annual cost per inmate to the District Government was $77.92; the average gross cost to the institution $111.53, and the average net cost to the institution $83.39. The per cent of income, less balances and earnings contributed by the District government, was 89.9. The daily average number of inmates was 257.9; the number of different persons cared for was 296; the number admitted, 126; the number of deaths but 2. Of the 116 who left these institutions 12 were placed in other institutions, 54 were returned to relatives or friends, 11 escaped, and 39 were indentured, apprenticed, or situations found for them.

The question is constantly recurring how far an industrial school should undertake to derive a profit from the work of its inmates. It is said on the one hand that the education of the inmates is the primary consideration and that their powers and capacities should be developed as fully as possible, without regard to the market value of the product. On the other hand, it is urged that the best way to teach the young to work is to give them work that needs doing, and so make them feel that they are helping to earn their support. The question is one that each manager of an institution must solve in his or her own way, having regard to the class of dependents cared for. It is possible so to direct useful work as to make it of great educational value to the worker, and it is possible to putter around at what is called manual training without any adequate returns, either in the value of product or development of the child. Manifestly the welfare of the child should be the primary consideration, but sometimes this is best served by keeping him steadily at work in a manner profitable to the institution.

The appropriations necessary to care for the dependent children of the District will this year be placed to the credit of the Board of Children's Guardians, before whom the several institutions will appear as contractors. It is not, therefore, necessary that hereafter the names of these private institutions should appear in the annual appropriation

bills, and my recommendations this year will be shaped in accordance with the new condition of things.

It does not seem advisable to repeat from last year's report the description of the location, character, and purpose of the various institutions, but only to give a running account of their work for the year, mainly as it appears in the tabular statements.

The Church Orphanage of St. John's Parish.—The facts regarding this institution will be found in line 1, of tables 6, 7, and 9. During the year it had a daily average of 83.5 inmates, and cared for 97 different children. All those that went out from it were either placed in other institutions or returned to relatives. These figures indicate a comparatively long institution life for the children cared for at the orphanage. The difficulty of satisfactorily placing them has been found great, especially in the case of boys at the age when they necessarily leave the institution. The per cent of income contributed by the District government was only 26.2, and the average cost per inmate only $58.97. These facts indicate that the managers are capable and generous people, and that the sister in charge has unusual faculty for economical administration. That the economy does not result from parsimony which interferes with the proper care of the children, is shown by the uniform healthfulness of the institution, and its freedom from any deaths whatever during a series of years. A farm in Virginia, to which the children are sent during the summer, adds much to the healthfulness of the institution. Large improvements through additions to the playground and the reconstruction of buildings previously occupied were made during the year, and this without public assistance. I should have been glad if Congress had seen fit to grant a somewhat larger subsidy for the current year than was in fact allowed, but the burden entailed by the improvements have been cheerfully assumed by the managers, and they will no doubt be able also to provide for the institution without more help than that actually granted.

German Orphan Asylum.—The tabulated facts regarding this institution will be found in line 2 of tables 6, 7, and 9. This institution cared for a daily average of 43.5 children and for 53 different children during the year. Of those leaving during the year several were returned to relatives or friends, and 3 were sent to situations that had been found for them. The personnel of the house management was changed during the year, and serious difficulties in securing an adequate water supply were overcome. From Table 6 it will be seen that a considerable number of children have been in the institution more than five years. The per cent of income contributed by the District government was 55.3, and the average annual cost per inmate for the institution was $145.77. All contributions in kind have been carefully estimated, and included in maintenance. It has been found by the managers that the rural location, while an excellent thing for the children, entails some expenses not incident to the operation of an institution in the city.

The National Association for the Relief of Destitute Colored Women and Children.—The tabulated facts regarding this institution will be found in line 3 of table 6, and line 4 of tables 7 and 9. During the year it has cared for a daily average of 126.7, and for 145 different children. Of the 22 leaving the institution there were 10 returned to relatives or friends and 10 sent to situations that had been found for them. The institution is supported entirely by public money. The average annual cost per inmate is $71.65.

There were 4 deaths at the institution during the year, and it is

feared that a pond of stagnant water only a short distance from the house will seriously interfere with the healthfulness of the institution if the nuisance is not abated. Either new furnaces or steam-heating apparatus is needed, and water must be obtained from the city main before very long. The present method of pumping from wells under the building is entirely unsatisfactory. I had expected to receive estimates of the cost of these necessary improvements and to ask Congress to appropriate what is necessary, but such estimates have not been furnished me at the time of writing this report.

At the close of the fiscal year for which this report is made the Misses Heacock who have given to the institution twenty years of faithful service as matron and assistant matron resigned.

Home for Colored Foundlings.—This institution is managed by a committee of the National Association for the Relief of Destitute Colored Women and Children. During the fiscal year ending June 30, 1892, the amount, $2,000, which had been appropriated for this branch of the work was inadequate, and $652.07 was used of the money appropriated for the older institution. During the current year Congress has made a more liberal allowance for the Foundling Home and it will probably not have to trench upon the revenues of the Orphan's Home. The tabulated facts regarding it will be found in line 4, Table 6, line 5, Table 7, and line 5, Table 9. It is supported entirely by public money. The average annual cost per inmate is $169.85. The death rate among colored foundlings is abnormally high, being 37 out of an average daily population of 15.77. Only 10 children during the last year left the institution otherwise than by death, and of these 1 was placed in another institution, 5 were returned to relatives or friends, and 4 were given in adoption. No children over 3 years of age are cared for in this home. After careful inquiry I do not find that the death rate is higher than is inevitable in an institution caring for exactly this class.

St. Ann's Infant Orphan Asylum.—The tabulated facts regarding this institution will be found in line 5, Table 6, line 6, Table 7, and line 6, Table 9. Seventy-seven and seven-tenths per cent of its income is derived from public funds. The average annual cost per inmate to the institution is $98.18. The average number of children cared for during the year has been 104.65. The number of different children cared for 212. There have been 78 deaths in the institution; 10 children were placed in other institutions, 39 were returned to relatives or friends, and 3 were given in adoption. The small addition to the appropriation which I asked in order to enable the sisters to pay somewhat more than at present for wet nurses was not granted, and the sisters were compelled to borrow a small amount to meet the expenses of the year. The work of this institution as a maternity hospital is not represented in the tables, but the number of births for the year was 22.

The Washington Hospital for Foundlings.—(See Table 6, line 6; Table 7, line 7, and Table 9, line 7.) Of the income of this institution the District government contributes 81.3 per cent. The average cost per inmate per year is $262.65. The census taken in July showed that all the children then present in the institution were under 3 years of age. This being so, one acquainted with such matters could at once predict the high death rate. As a matter of fact there were sixty-six deaths during the year, with an average number of inmates of 36.44 and 105 different children cared for. Of those leaving the institution otherwise than by death, 1 was placed in another institution, 4 were returned to relatives or friends, and 11 given in adoption. The large number for whom adoptive homes were found speaks well for the zeal of the managers in

this department of their work. About the only chance for saving an abandoned infant is to place it by adoption or otherwise in some home where it will be cared for as a child of the family.

The Women's Union Christian Association, managing a home for friendless girls.—This institution, which appears in these reports for the first time, is located on Erie street, corner of Seventeenth. It is managed by a private corporation of colored women, and first received public aid during the fiscal year ending June 30, 1892, by an apportionment made by the Commissioners from the fund of $16,000 placed at their disposal for the relief of the poor. The facts regarding it are given in Table 6, line 7, and Table 7, line 3, and Table 9, line 3. The allotment of $320 was made to this institution on my recommendation in view of the fact that it frequently received children from the almshouse or from the officer of the Humane Society. The number cared for is small, averaging only 11.75, but the number of different children cared during the year was 21, indicating a commendable tendency to find as soon as possible places for the girls where they can earn an independent living. Five of the girls were given in adoption, 2 were sent to situations, and only 1 was returned to relatives. The per cent of the income of this institution contributed by the District was 55.5. The cost per annum per inmate is given as only $36.36, but this can be explained only by remembering that many contributions in kind do not appear on the books of the treasurer.

St. Joseph Male Orphan Asylum has an appropriation for the current fiscal year, but as it had none for the year for which this report is made no account of its operations is here given. *The Newsboys' and Children's Aid Society* has also received a small amount through the Commissioners from the fund for the relief of the poor, but only for the current fiscal year.

The House of Mercy.—(See Table 6, line 8, Table 8, line 1, and Table 10, line 1.) To this institution the District contributes 76.9 of the income. The average cost per inmate per annum to the institution is $141.36. During the year the daily average number of inmates was 20.75 and the number of different persons cared for was 40. Of those who left, 1 was placed in another institution, 7 were returned to relatives or friends, 2 were sent to private homes or situations, and 2 escaped. Plans for the development of this institution are now being carried forward by private enterprise, it being intended to enlarge the accommodations of the house and to establish a laundry in one of the buildings on the ground.

As indicated in the last report, the work of this institution is now largely preventive. It has not been found possible to secure very much profitable work from the class of girls and young women received there. Even when there is no marked sickness there is often the lack of physical vigor and an undervitalization which makes steady work on the part of the inmate impossible.

It has seemed to me, though it is a view in which the managers in nowise concur, that this institution is not benefited by the money it receives from public appropriations. There is a work which can be done by a small and homelike institution especially fitted to benefit the class of wayward and immoral young women which this home seeks to reach. But such an institution can not make a report which will compare well, as to the numbers of those cared for and as to cost, with larger and more mechanically managed institutions. Therefore, when public money is appealed for, there is a constant temptation to get away from the more unpretentious but more useful forms of work which can

only be carried on in a small institution. It can not be too often repeated that there are many things which a small private association working independently of any official interference can do that are above and beyond anything that can be accomplished by public or semi-public intitutions. In this case, as in all others, I believe that the new relations to be established between the public and private agencies by the creation of the Board of Children's Guardians will be of distinct advantage to the private institution.

The House of the Good Shepherd.—(See Table 6, line 9, Table 8, line 2, and Table 10, line 2.) A glance at Table 5 will show that this institution, established primarily for fallen women, is in part changing its purpose and doing the work of an ordinary orphan asylum. Of the 68 inmates, 5 are under 8 years of age, and 15 are between 8 and 14 years of age. As a matter of fact, 19 of the inmates belong to what is known as the preservation class, while the remainder belong to the class known as the penitents. The two classes are kept separate and distinct. It is doubtful if orphan-asylum work can properly be undertaken by an institution of this class, and it is to be feared that desire to have the institution entirely full is a partial explanation of the receiving of very young children.

During the last session of Congress a very liberal offer was made on behalf of this institution. It was designed to obviate the necessity of establishing a public reform school for girls. The offer was, substantially, that if $23,000 were given for purposes of construction and an additional annual allowance of $3,000 the House of the Good Shepherd would provide for 100 colored girls committed to it by the courts. For many reasons, which it does not seem necessary at this late day to repeat, it seemed better to the Commissioners, to the Congressional committees, that the public reform school for girls should be established, and this proposition of the House of the Good Shepherd was not brought in the field of public discussion, lest in halting between two competitive enterprises the whole matter of provision for delinquent female minors should be neglected as it had been for years before.

The Industrial Home School.—(See Table 6, line 10; Table 8, line 3, and Table 10, line 3.) This institution has an average daily number of inmates of 100.4 and cared for 155 different children during the year. Of the 54 that left the institution during the year, 25 were returned to relatives or friends and 20 were sent to private homes or to situations that had been found for them. In pleasant contrast with common unwillingness of employers to take institution children is the fact that those who leave this institution are sought after by persons desiring to employ such help. The industrial training given at the institution adds considerably to the expense of it, but no one can doubt who has carefully examined the results that it much more than pays for itself. Systematic instruction is given to the boys in carpenter work and in caring for the greenhouses owned and managed by the school. It is supported entirely by public money, except that nearly $1,000 is realized from the sale of the products of the shops and greenhouses. The average annual cost of an inmate is $123.91. The request made to the Commissioners by the president and secretary of the board of trustees of this institution asks for $13,500 for maintenance, $2,500 for the promotion of industries, and $4,000 for building and repairs. As this is a private corporation, it must necessarily take its place with others of like character as a contractor, and deal primarily with the Board of Children's Guardians and not directly with Congress. Inasmuch, however, as the property which it occupies belongs to the District in fee, an exception

may be made in appropriations for purposes of construction. Whatever improvements the District makes on this property the District will own and can have the use of for any purposes to which it may be desirable to put them hereafter.

The old building occupied by the Industrial School was formerly the Georgetown almshouse. The walls are substantial, but the woodwork is rotting away. The roof and window-casings let in both wind and rain, and the building is almost uninhabitable. At the same time additional room is needed in order to provide proper rooms for children that may be sick, and for other purposes. It is the opinion of the inspector of buildings for the District that for $4,000 the walls could be carried up so as to make a second story out of what is now but a half-story and the decaying roof and woodwork replaced by new. It appears to me that the expenditure of money for this purpose would be economical and useful, and that it is in fact necessary unless the old building is allowed to go to utter wreck and be torn down.

As the industrial training given also adds to the cost of operating the institution and is an element not ordinarily present in the expenses of an orphan asylum, this might be properly appropriated for in addition to whatever may be received through the Board of Children's Guardians for the care of children.

If the corporation controlling the institution is willing to so modify its character as to become a public corporation, with members appointed by the Commissioners on the recommendation of the board itself, I should distinctly favor having this institution appear by name in the annual appropriation bills and receive a substantive appropriation on the same footing as the reform schools.

Under existing circumstances I recommend for the promotion of industries, $2,000; for building and repairs, $4,000.

St. Rose's Industrial School.—(See Table 6, line 11; Table 8, line 4, and Table 10, line 4.) This is an institution of whose income 80.6 per cent is paid by the District. The net profits on the industries carried on are reported as $3,500 for the fiscal year. It contains on an average 82 girls, and cared for 106 different girls during the year. Most of the girls are over 15 years of age, and none are received but those of good character. The institution is one where useful industrial training seems to be combined in a very satisfactory way with the making of a profit on the work done. It is, in fact, a large dressmaking establishment, but one in which the health and development of the workers is not sacrificed to the profits derived from the business. It serves as a training school for girls from ordinary orphan asylums, many of whom come here to acquire a trade before going out into ordinary life. As will be seen from Table 6, 59 of the girls have come from other institutions, 39 of these from institutions outside the District.

THE CARE OF FEEBLE-MINDED CHILDREN.

By an act approved June 16, 1880, feeble-minded children in the District may be sent, in the discretion of the president of the Columbia Institution for the Deaf and Dumb, to institutions suitable for their care and training. Under this act feeble-minded children have been sent from the District to the great institution for the training of feeble-minded at Elwyn, Pa. I visited this institution June 17, 1892. At that time there were 14 District children there, all of whom seemed to be in good health. About half of them were employed at some sort of useful work. The statement furnished me by Dr. Kerlin regarding these

District children indicates that eight of them are susceptible of improvement. The one who has been there longest, since 1884, is becoming a useful domestic. In some cases it is reported that the children are susceptible of much mental improvement, but that moral incapacity is fixed and incurable. For those children who are unable to do anything of a useful character about the institution the District pays $250 per year each. Four, whose development has advanced so far that they can be of considerable use, are cared for by the institution at the rate of $100 per annum. Their ages range from 10 to 20 years.

The District is fortunate in having so good a place where dependent children can be provided for at such reasonable rates. We should avail ourselves more largely of the opportunity than we have heretofore done. It is unfortunate that 32 feeble-minded children should remain in our local institutions. The presence of a mental or moral imbecile, or of a child approaching that character, does much to lower the tone of the institution in which it is cared for. The average of energy and inventiveness is at best none too high among institution children, and it is distinctly bad, both for the feeble-minded themselves and for their associates, that the mentally sound and the mentally unsound should grow up together. Many more applications have been made to Dr. Gallaudet for the admission of feeble minded children to Elwyn than the size of the appropriation enables him to provide for. Not only in the institutions for children, but also in the Washington Asylum, are there feeble-minded children who should have the special training and care which a special institution can alone give. Another matter which should be considered is provision for the custody of feeble-minded adults, especially women. It is better to isolate and afford institutional protection to these unfortunates than to allow the community to be burdened by successive generations of their descendants. Custodial care need not cost as much as the special training which it is profitable to give the children, but it should be kindly and continuous. At present it does not seem advisable to ask for any other change than an increase of the appropriation, which will make it possible to send a larger number of children to Elwyn.

Dr. Gallaudet was charged with the work of attending to these cases at a time when there seemed to be no other official in the District that could properly undertake it. I understand that he would prefer to be relieved of this duty, and I have therefore placed the estimate for this work with the other items of the estimates for the Board of Children's Guardians. This board seems to be the proper authority to have charge of the matter, and can best coördinate it with the other child-saving work of the District.

THE BOARD OF CHILDREN'S GUARDIANS.

The text of the law creating this board is as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there shall be created, in and for the District of Columbia, a board to be known as the board of children's guardians, composed of nine members who shall serve without compensation, the said board to be a body politic and corporate and to have the powers and to be constituted in the manner hereinafter provided.

SEC. 2. That the members of the board of children's guardians shall be appointed by the judges of the police court and the judge holding the criminal court of the District of Columbia, met together for that purpose; the assent of a majority of such judges being necessary to appointment in each case: *Provided*, That there shall always be at least three representatives of each sex upon the board. Of the nine members first appointed after the passage of this act, three shall be appointed for

one year, three for two years, and three for three years. Thereafter all appointments, except such as shall be made for the remainder of unexpired terms, shall be for the term of three years. The judges of the police court and the judge holding the criminal court, or a majority of them, when met together for that purpose, may remove for cause any member of the board: *Provided*, That such member shall be given an oportunity to be heard in his own defense.

SEC. 3. That the board shall elect from its own members a president, vice-president, and secretary, who shall severally discharge the duties usual to such offices, or such as the by-laws of the board may prescribe. The board shall have the power subject to the approval of the Commissioners to employ not more than two agents, at an annual compensation not exceeding two thousand four hundred dollars for the two, and prescribe their duties, and to conclude arrangements with persons or institutions for the care of dependent children at such rates as may be agreed upon.

SEC. 4. That said board shall have the care and supervision of the following classes of children: First. All children committed under section two of the act approved February thirteenth, eighteen hundred and eighty five, entitled, "An act for the protection of children in the District of Columbia, and for other purposes." Second. All children who are destitute of suitable homes and adequate means of earning an honest living, all children abandoned by their parents or guardians, all children of habitually drunken or vicious or unfit parents, all children habitually begging on the streets or from door to door, all children kept in vicious or immoral associations, all children known by their language or life to be vicious or incorrigible, whenever such children may be committed to the care of the board by the police court or the criminal court of the District; and power is hereby given to these courts to commit such children when not over sixteen years of age to said board: *Provided*, That the laws regulating the commitment of children to the reform schools of the district shall not be deemed to be repealed in any part by this act. Third, such children as the board of trustees of the reform school for boys or the reform school for girls, may, in their discretion, commit to the board of children's guardians, and power is hereby given the board of trustees of the said reform school to commit any inmate of their respective institutions to the said board of guardians, conditionally upon the good behavior of the child so committed. Fourth. Under the rules to be established by the board children may be received and temporarily cared for pending investigation or judgment of the court.

SEC. 5. That the board shall be the legal guardian of all children committed to it by the courts, and shall have full power to board them in private families, to board them in institutions willing to receive them, to bind them out or apprentice them, or to give them in adoption to foster parents. Children received from the reform schools shall be placed at work, bound out or apprenticed, and at any time before attaining majority may be returned to the school from which they came, if in the judgment of the board of guardians such a course is demanded by the interest of the community or the welfare of the child. All children under the guardianship of the board shall be visited not less than once a year by an agent of the board, and as much oftener as the welfare of the child demands. Children received temporarily may not be kept longer than one week, except by order of the police court or the criminal court.

SEC. 6. That the antecedents, character, and condition of life of each child received by the board shall be investigated as fully as possible, and the facts learned entered in permanent records, in which shall also be noted the subsequent history of each child, so far as it can be ascertained.

SEC. 7. That the Commissioners of the District shall have authority to prescribe the form of records to be kept by the board of guardians, and the methods to be employed by them in paying bills and auditing accounts; and an annual report of its operations hereunder shall be made by the board to the superintendent of charities. The superintendent of charities shall have full powers of investigation and report regarding all branches of the work of the board, as well as over all institutions in which children are placed by the board; and it shall be his duty to recommend annually the appropriations which in his judgment are necessary to the carrying on of its work.

Approved, July 26, 1892.

Pursuant to this act the judges of the two courts named, on September 16, 1892, appointed as members of this board, for the term of three years, Joseph J. Darlington, Crosby S. Noyes, and Miss Harriet Loring; for the term of two years, B. Pickman Mann, Simon Wolf, and Mrs. L. S. Doolittle; for the term of one year, Albert A. Wilson, George W. Moore, and Mrs. H. B. F. Macfarland. It being not possible for Mr. Wilson and Mr. Moore to serve, the judges, in November, appointed William J. Miller and John F. Cook to fill the vacacies on the board.

It was not intended, or, indeed, possible, that this board should begin work during the current fiscal year, but only that it should organize and be ready to proceed with its duties after the coming session of Congress. The memoranda furnished the Commissioners and the report of the House committee on the bill while pending serve to indicate a little more fully than the act itself the special duties and responsibilities that will devolve upon the new board.

It will hereafter be unnecessary that the District should be asked to contribute to the support of any dependent child unless that child is the legal ward of the Board of Guardians. There is certainly enough provision made by charitable means for the temporary care of the children of the poor. After organizing and appointing its agents, it will be the duty of the board to investigate and pass upon the case of every child, whether at present in an institution or not, which it is thought desirable that the District should support. If the court appealed to makes the child dependent, then the Board of Guardians, can place it to board in any private institution, in any private family, or give it in adoption to foster parents if opportunity offers. The way in which a private institution can secure public money will be to bring the cases of the children in its care before the Board of Guardians, and if the children are adjudged dependent then public money will be available to pay for their care so long as they are in the institution. It will be seen that if the institution then wishes to serve denominational or general humanitarian interests it can do so, but at its own cost and not at the cost of the taxpayers of the District.

It is further hoped that the overcrowded condition of the institutions for children may be relieved in consequence of (1) expert and thorough investigation of all cases, (2) of the gradual introduction ot the placing-out system. The introduction of this system in the District is somewhat experimental, but in so far as it can be introduced it is undoubtedly much better and much cheaper than institution care. The Board of Guardians will have authority to place out any child for the support of which the District is contributing.

Another possible benefit to be derived from the operation of the new board is the mitigation of the pressure upon the reform schools. Many children are sent to these schools whom it is not necessary to retain in the institution for any considerable period, and by the new legislation the trustees of a reform school can give such inmates conditional liberation under the guardianship of the Board of Guardians.

As considerable time will be necessary for the investigation of the cases of the 600 or more children now in subsidized private institutions, it is necessary that the Board of Guardians should be at work some time before the new fiscal arrangements for these institutions go into effect. I shall, therefore, ask that the money for the administrative expenses for the board be made immediately available upon the passage of the appropriation bill. This will give four months in which to investigate cases before the institutions will have used up the money appropriated to their use for the current fiscal year.

It is not possible to tell exactly what the expenditures for the care of dependent children will be under the new order of things. No measures should be adopted that would cripple existing institutions or fail to provide in the fullest possible manner for the properly dependent children of the District. Much will doubtless depend on the methods of administration adopted by the board when it shall be organized. With the Pennsylvania Children's Aid Society, where the children are boarded out, the cost is $138 per year per child, divided as follows:

Administrative expenses, $22.66; boarding, $96.21; clothing, $14.89; medicine, etc., $4.92.

The children's visitor of the Philadelphia Bureau of Charities, who has authority to board out those in his care, has charge of about 368 children in a year. He pays $1.54 a week for the board of those that are placed in institutions, $2 per week for those who are placed with the Children's Aid Society.

Great economies may be expected from the new Board of Guardians, but in order to prevent injustice to institutions heretofore receiving subsidies, or possible hardship to the children, I have estimated for an amount about the same as for the current year for this work of providing for dependent children. The estimates are based on the census of children already described, and on comparisons made with similar work in other cities.

I recommend that the following amounts be appropriated for the use of the Board of Children's Guardians for the fiscal year ending June 30, 1894, or so much of the several amounts as may be necessary:

For administrative expenses, including salaries of agents, expenses in placing and visiting children, and all office and sundry expenses, $6,000; this to be immediately available.

For the care of feeble-minded children, $6,000, provided that the authority for placing these children heretofore given to the Secretary of the Interior be transferred to the Board of Children's Guardians.

For the care of children under three years of age, white and colored, $15,500.

For the board and care of all children over 3 years of age, $28,000;

For the temporary care of children pending investigation, or while being transferred from place to place, $3,500; in all, $59,000.

This is $50 less than the amount appropriated for similar purposes during the current year, but in my opinion, under the new condition of affairs, will be ample for the work required. Hereafter it is possible that larger savings may result, and at any rate the tendency to swell this item of the annual appropriation bill will, I trust, be checked.

THE GIRLS' REFORM SCHOOL.

The following estimates for the Girls' Reform School have been furnished me by the board of trustees and are approved:

Salaries from March 1, 1893, to June 30, 1894:	
Superintendent, at $1,200	$1,600
Matron, at $600	800
Two teachers, at $480 each	1,280
One day watchman, who shall also be driver, at $600	800
One night watchman, at $365	488
One laborer, at $300	400
Supplies from March 1, 1893, to June 30, 1894:	
Groceries, provisions, fuel, soap, oil, lamps, candles, clothing, shoes, forage, horseshoeing, medicine, medical attendance, hack hire, freight, stationery, furniture, beds, bedding, sewing machines, fixtures, books, horses, wagon, harness, cows, stable, wagon and cow sheds, fences, and repairs	18,175
Total	23,543

INSTITUTIONS FOR THE HOMELESS POOR.

Tables 11 and 12 give such facts as have been gathered relative to the six institutions for the homeless poor in Washington. In my last report it was recommended that four of these institutions be omitted

from the annual subsidy list, and that instead a municipal lodging house and wood yard be established. The appropriation committees very properly took the view that, inasmuch as the appropriation bills did not pass until the middle of summer, and it would be a slow work to organize a new institution, it was better to provide for the new institution, but not to refuse to subsidize the old ones until it was seen what the municipal lodging house could accomplish. In the present report a new adjustment is suggested by which the four institutions referred to can receive public money hereafter on the businesslike principle of specific payment for specific work.

TABLE 11.—*Financial report of temporary homes for fiscal year ending June 30, 1892.*

	Name of institution. (I.)	Estimated value of property owned. (II.)	Income from— Balance. (III.)	Public funds. (IV.)	Pay, inmates, or work of inmates. (V.)	All other sources, subscriptions, donations, dues, etc. (VI.)	Total. (VII.)
1	Hope and Help Mission	$300	$192.24	$1,000.00	$8.07	$542.79	$1,743.10
2	National Temperance Home	.....	124.21	2,149.69	2,052.15	15.84	4,341.89
3	Night Lodging House Association	7,500	557.10	400.00	.....	275.00	1,232.10
4	Temporary Home for Soldiers and Sailors	750	51.24	2,500.00	.....	885.69	3,436.93
5	Woman's Christian Association	37,500	621.65	4,000.00	2,494.77	378.25	7,494.67
6	Young Women's Christian Home	.....	405.74	1,000,00	795.99	1,327.55	3,529.28
	Total	46,050	1,952.18	11,049.69	5,350.98	3,425.12	21,777.97

	Name of institution. (I.)	Expenditures for— Rent. (VIII.)	Salaries. (IX.)	All other forms of maintenance, including repairs. (X.)	Total. (XI.)	Balance. (XII.)	Per cent of interest less balances and earnings contributed by District government. (XIII.)
1	Hope and Help Mission	$600.00	$339.91	$629.95	$1,569.86	$173.24	64.8
2	National Temperance Home	880.00	800.00	2,479.58	4,159,58	182.31	99.3
3	Night Lodging House Association	.....	192.50	519.32	711.82	520.28	59.3
4	Temporary Home for Soldiers and Sailors	390.00	300.00	2,489.91	3,179.91	257.02	73.8
5	Woman's Christian Association	.....	1,332.50	5,560.13	6,892.63	602.04	91.1
6	Young Women's Christian Home	812.04	495.00	1,524.96	2,832.00	697.28	43
	Total	2,682.04	3,459.91	13,203.85	19,345.80	2,432.17	70.5

TABLE 12.—*Report of work done in temporary homes during fiscal year ending June 30, 1892.*

	Name of institution. (I.)	Meals. Free. (II.)	Paid for. (III.)	Worked for. (IV.)	Total, free, paid for, worked for. (V.)	For employés. (VI.)	Total, free, paid for, worked for, and for employés. (VII.)
1	Hope and Help Mission	9,461	.....	593	10,054	1,098	11,152
2	National Temperance Home	6,633	11,261	1,149	19,043	4,713	23,756
3	Night Lodging House Association	5,247	.....	.....	5,247	1,008	6,255
4	Temporary Home for Soldiers and Sailors	24,682	.....	.....	24,682	.....	24,682
5	Woman's Christian Association	16,966	20,828	6,337	44,131	7,403	51,534
6	Young Women's Christian Home	4,024	14,376	190	18,590	2,502	21,092
	Total	67,013	46,465	8,269	121,747	16,724	138,471

	Name of institution.	Lodgings. Free. (VIII.)	Paid for. (IX.)	Worked for. (X.)	Total, free, paid for, worked for. (XI.)	For employés. (XII.)	Total, free, paid for, worked for, and for employés. (XIII.)
1	Hope and Help Mission	3,852	.....	340	4,192	734	4,926
2	National Temperance Home	1,898	3,770	196	5,864	926	6,790
3	Night Lodging House Association	2,203	.....	.....	2,203	168	2,371
4	Temporary Home for Soldiers and Sailors	11,080	.....	.....	11,080	.....	11,080
5	Woman's Christian Association	5,691	7,031	2,112	14,834	2,222	17,056
6	Young Women's Christian Home	1,074	3,949	.....	5,023	462	5,485
	Total	25,798	14,750	2,648	43,196	4,512	47,708

	Name of institution.	Total number of meals and lodgings. (XIV.)	Average cost of meals or lodging. (XV.)	Number refused accommodations. (XVI.)	Largest number at one time. (XVII.)	Smallest number at one time. (XVIII.)	Number for whom situations were found. (XIX.)
1	Hope and Help Mission	16,078	$0.098	.....	16	5	72
2	National Temperance Home	30,546	.136	.....	31	17	10
3	Night Lodging House Association	8,626	.082	321	31	7	.....
4	Temporary Home for Soldiers and Sailors	35,762	.089	.....	56	13	.....
5	Woman's Christian Association	68,590	.101	.....	55	42	53
6	Young Women's Christian Home	26,577	.107	152	20	16	130
	Total	186,179	.104	473	.....	.....	265

The fund of $5,400 placed at the disposal of the Commissioners "for the temporary support of indigent persons" was allotted as suggested by the wording of this item in the appropriation bill, namely:

Temporary Home for Ex-Union Soldiers and Sailors	$2,500
Young Women's Christian Home	1,000
Hope and Help Mission	1,000
Washington Night Lodging Association	400
Metropolitan police (for distributions to the poor)	500

The last item of this apportionment was adopted by the Commissioners without the recommendation of the superintendent of charities.

Temporary Home for ex-Union Soldiers and Sailors, Grand Army of the Republic.—The tabulated facts regarding this institution will be found

in Table 11, line 4, and Table 12, line 4. From the financial statement it will be seen that 73.8 per cent of its income was derived from District funds. Its salary roll amounted, for the year, to only $300, and it was carried on by a total expenditure of $3,179.91. During the year it furnished a total of 24,682 free meals and 11,080 free lodgings. The average cost of a meal or lodging was 8.9 cents. The volume of work done shows an increase of about 700 meals and lodgings over the preceding year. The largest number cared for any one night was 56 and the smallest number at any one time 13.

It is definitely my opinion that this institution should not be under the District government and not chargeable upon its revenues, but that it should be under the Board of Governors of the National Soldiers' Homes. But, since Congress refused to accept this view of the matter, nothing remains for me to do but to estimate for it as provided by law. Last year an earnest appeal was made to have Congress increase the amount for this home to $3,000. That appeal was based partly upon the increased expenditures that it was anticipated would be entailed upon the home by the presence of the Grand Army of the Republic in its reunion during the current year. At the date of writing this I am not informed whether or not the managers anticipate exceptionally large expenditures next year, and therefore recommend only the amount heretofore given.

I recommend for the Temporary Home for ex-Union Soldiers and Sailors for the fiscal year ending June 30, 1894, $2,500.

The Women's Christian Association.—(See lines 4, Tables 11 and 12.) The work of this institution has been so long established and embraces so many kinds of activity that it has been impossible to classify it as a temporary home, strictly so called. It can and ought to coöperate with the municipal lodging house when the latter is organized and in operation, but it seems not unjust that the association itself should be allowed, at least for some time, to retain its long held place in the appropriation bills. During the past year 91.1 per cent of its income was furnished by the District government. Of the meals furnished to beneficiaries, 16,966 were free, 20,828 paid for, 6,337 worked for. The number of free lodgings was 5,691, of lodgings paid 7,031, and the lodgings worked for 2,112; the average cost of a meal or lodging was 10.1 cents; the largest number of inmates at one time was 55 and the smallest 42. The total amount received from pay inmates was $2,494.77.

I recommend the usual appropriation of $4,000 for maintenance for the Women's Christian Association for the year ending June 30, 1894.

Hope and Help Mission.—(See Table 11, line 1, and Table 12, line 1.) The work of this institution, as described in my last annual report, has been continued along much the same lines as during the previous year. The tabulated facts regarding it will give all, perhaps, that is essential. Situations were found for 72 persons who are beneficiaries of the mission. In this class of work a very good gauge of efficiency is the number of persons for whom work is found. As already indicated, it seems wise that the public support accorded this institution should be given on the principle of specific payment for specific work, and will be elsewhere provided for.

National Temperance Home.—The tabulated facts regarding this institution will be found in Tables 11 and 12, line 2 in each case. The tabular statement, together with last year's description of the purposes and methods of this home, constitute all that it seems necessary to say about it at present. As in the case of three other institutions, it seems

inadvisable that a specific appropriation should be made for this institution by name.

The Young Women's Christian Home.—The tabulated facts regarding this institution are arranged in Tables 11 and 12, line 6 in each. It will be seen that work was found for 136 persons by the authorities at this home. The large number of those refused admission—152—is explained by the age limit and the fact that those are not received who can not bring evidence of good character.

The Washington Night Lodging Association.—The facts regarding the operations of this institution, so far as they are capable of tabular expression, will be found in Tables 11 and 12, line 3 in each case. The institution was only operated for about four or five months during the coldest of the weather. Although Congress appropriated $400 which might have been used during the current year by this association, yet by a resolution of the board of trustees, unanimously adopted September 16, 1892, the building and appliances were turned over to the Commissioners for the use of the new Municipal Lodging House. This act of generosity on their part at once freed the new enterprise from the necessity of paying rent during its experimental year, and also placed at the disposal of the Commissioners for other use the $400 designed for the Night Lodging House. It is certainly a refreshing experience, after dealing with many organizations which are unwilling or unable to coöperate satisfactorily with others for the best good of the work in which all are interested, to find here an asssociation which is willing to yield up its property without compensation and to suspend its operations for a year in order that a new public institution may have a fair trial.

Municipal Lodging House and Wood Yard.—The opening of this new institution, for which $8,000 was asked and $4,000 obtained at the last session of Congress, has been postponed until late in the autumn, in order that the amount available might be adequate to the work in hand for the time during which it is operated. At this time no superintendent has been appointed, but inquiries have been made in Washington and in other cities for some one of intelligence and experience who can go forward with the work vigorously and develop it along right lines. It is not doubted that such a person can be found. There is coming to be a large class of men of vigor and intelligence and education who take up philanthropic work from higher motives than the mere drawing of a salary, and it is hoped that some one of this class can be secured.

As already indicated, it is hoped that the new institution will result in emptying the station-houses of lodgers; that, by providing a work test, it will help to rid the city of tramps, and that it will give cleanly and honorable relief to all strangers really destitute and honestly out of work in the city.

As there may be some classes of cases for which such an institution can not properly provide and which it may seem best to send to some of the private institutions already existing, it is recommended that a fund be placed at the disposal of the superintendent of the municipal lodging house, which shall enable him to send any cases of this kind to these private institutions.

I recommend for the municipal lodging house and wood yard for the year ending June 30, 1894, $6,000.

For the temporary support of indigent persons who may be sent to private institutions by the superintendent of the municipal lodging house, $4,000.

Aged Women's Home.—This institution received the usual $300 through

the Commissioners from the fund at their disposal for the relief of the poor. It is unlike any other of the subsidized charities, and therefore its transactions are not tabulated with theirs. About the full quota of 13 aged women were given shelter here during the fiscal year. The items of income for the year were: balance, $186.81; public funds, $300; endowments, $103; all other sources, including donations, subscriptions, etc., $144.78. On the expenditure side there was no rent and no salaries to be paid. The outlay for other items of maintenance was $427.56.

For reasons explained on pages 34–35 of my last annual report it does not seem to me expedient to subsidize private institutions for the aged, and I shall not hereafter recommend the allowance of the $300 heretofore given this home. It was given for the current year in order that no inconvenience might result from its sudden discontinuance.

OUTDOOR RELIEF.

ASSOCIATED CHARITIES.

The problem of allotting or not allotting the sum of $1,000 to the Associated Charities from the fund at the disposal of the Commissioners for the relief of the poor was much discussed during the last fiscal year. Such an allowance had been made during the preceding year, and my recommendation that it be not renewed was vigorously opposed. In order that the association concerned might not be crippled through the unexpected withdrawal of its income the amount for one quarter, $250, was given. My argument against any further allowance at the time was summarized in a memorandum handed to the Commissioners under date of November 4, 1891. The important parts of this memorandum are given herewith:

I have never definitely recommended to you that the amount last year appropriated to the Associated Charities should hereafter be withheld, but I have made recommendations for other uses of the money inconsistent with their receiving that amount, and I have indicated to their managers my opinion that it would not be expedient to renew the grant of last year. Some matters not strictly pertinent to the question in hand were brought forward by the committee that appeared before you on the 23d of October last, and these must be briefly touched upon before turning to a systematic review of the points at issue.

The president of the board of managers of the Associated Charities urged that I have no authority to make recommendations regarding the apportionment of the $16,000 "for the relief of the poor." You, the Commissioners, will remember that on the 18th of June last I asked if you wished me "to report and make recommendations concerning the expenditure" of this money, and I have the signature of the three Commissioners to the written answer, "Yes." It would be strange indeed if you had no right to request a subordinate to furnish you with facts and recommendations in such a matter. Mr. Dodge further urged that I have no right to make recommendations regarding the uses to which the "centennial fund" shall be put. I have never made any.

It was further said by the committee that the only question is, "Shall this money be given to the Associated Charities or to the police for distribution among the poor." I, on the contrary, think there are four distinct policies open to you in the matter of outdoor relief: (1) You are free to hold that outdoor relief with taxpayers' money is inadvisable, and that there shall be none of it. By taking this course you would put yourself in line with what is considered expedient by a majority of those best acquainted with relief work in the large cities of America. The $16,000 might then all be used to provide more effectually for dependent children or for the relief of the destitute sick than is now possible. (2) You are free to hold that outdoor relief with taxpayers' money is advisable, but that it should be administered only by experts in the work, appointed by yourself and directly responsible to you for the administration of the trust. (3) You are free to hold that such relief should be given by and through the police department, the health department, or any other branch of the city government on which you may think best to impose

the responsibility of such additional work. (4) You are free to give the taxpayers' money for distribution in outdoor relief to self-organized private associations, such as the Associated Charities, the Society of St. Vincent de Paul, the Women's Christian Association, or others that do more or less of such work. It is only as to the advisability of adopting the last-named policy that we are now making inquiries.

I wish to bring to your attention three reasons for not hereafter apportioning to the Associated Charities any part of the $16,000 "for the relief of the poor."

(1) It will be injurious to the society itself to receive public money. This statement is questioned by the managers, but it should be noticed that they are not disinterested judges. It is much easier and pleasanter to disburse public money than to obtain and disburse private contributions. As one who has worked for a society entirely supported by private contributions, I am well aware of the straits in which finance committees find themselves, and of the unpleasant nature of the work securing adequate support. I can understand that even good men should wish to avoid such work if possible, but they should not forget that the interests of the poor and of the community will suffer if they do. Taxation can not take the place of self-sacrifice. To support my contention that public subsidies tend to diminish the amount of private contributions I submit the following facts:

In 1880 there were only six institutions receiving aid for maintenance from the District treasury which have also received such aid annually since that time. Of these there is not one that during the year ending June 30, 1891, did not receive more from public than from private contributions; and of the six, four now derive less than 10 per cent of their annual income from private sources. In most cases, if we examine the records of a subsidized institution for a series of years, we find an absolute as well as a relative falling off in the matter of contributions from private persons.

Mr. Emery stated to me, on the evening of the 20th instant, that during the three-quarters of the year ending October 16, 1891, the Associated Charities had received from the Commissioners $750, and during that time the private contributions had fallen off $450 as compared with the same period for the preceding year. He added that he thought that if he had exerted himself as much as formerly the private contributions would have been kept up to their former figure. It seems that a gift of public money merely frees the representatives of a society from "exerting themselves," and I doubt the advisability of doing this. That the general secretary of such a society ought not to be expected to solicit and collect the money with which he is paid I conceive to be true; but that is a point for him and his managers to settle between themselves, just as similar points are settled between a clergyman and his parishioners.

To you Mr. Emery stated that since my appointment the contributions from private persons had fallen off 25 per cent, and attributed the decrease to the fact that people supposed I was going to do his work. But it should be noticed that the time of the creation of this office was also the time when the Associated Charities first received public money; and while the mistake regarding my functions might have been easily and fully explained had the society been in proper touch with its contributors and friends the grant of a public subsidy gave an excuse for withholding private contributions that could not be explained away.

Now, while it is unpleasant for the managers of a society like the Associated Charities to ask for private contributions, it is essential to the efficiency of the organization that they should do so. The very breath of life of such an organization is the confidence of the community in which it works, and the surest way to compel it to secure that confidence is to make it look to that community for voluntary support. When a society solicits contributions it hears all the complaints that are made about itself, and to be obliged to listen to these is the first step either in showing their unsoundness or in correcting the faults on which they are based. Even a large endowment is often a misfortune to a society seeking to organize the charities of a city. I could cite specific instances were it necessary. When the manager of the Associated Charities tells us that they are frequently in debt during the fall and winter, the proper reply is that their lot is the common lot of similar organizations, will make them more active and more efficient, and that public subsidies are no more a proper remedy for such a state of things than opium is a proper remedy for insomnia.

(2) It is contrary to public policy that public money should be given to any private association to be distributed in outdoor relief. Outdoor is one of the most dangerous methods of relieving the poor ever attempted. In this country and in England it has more often degraded than benefited the destitute, and has done more to fill almshouses than to empty them. I know of no large city that now ventures to intrust the perilous matter of administering such relief from the public funds to self-organized societies, though I know of several that have experimented in that direction and abandoned the policy as too dangerous. It is easy to see why that should be so. It is possible for Government officials adequately to inspect the insti-

tutions it subsidizes, but it is not possible for any official to follow and report upon work that must extend to every alley and hovel of a great city. If such relief is to be given from public funds American experience indicates that it should be given by public officials alone.

(3) The public subvention of a society doing the work which the Associated Charities has undertaken is not necessary in Washington. Though the general secretary of the Associated Charities scouts the idea that one who has been in the city but a few months can know anything about her people, yet I venture to believe that he and the managers underestimate the public spirit and liberality of our citizens. I venture to believe, and have definite grounds for the belief, that if the Associated Charities but succeed in holding the confidence of the community they will receive adequate support from private sources. * * *

RELIEF THROUGH THE POLICE DEPARTMENT.

The money received by the District government from what is called the centennial fund for the relief of the poor is turned over to the police department, as well as any residual amounts left from the fund "for the relief of the poor" and the fund "for the temporary support of indigent persons, male and female." A small amount of relief distributed through the police usually reaches a very necessitous class, and where no better agency for the distribution of outdoor relief exists it is possibly a useful method of aiding the poor. The police departments of nearly all cities receive more or less from public or private sources for such purposes, but I never knew or heard of a police department that could properly be made the almoner of any considerable sum. Giving relief is not the policeman's specialty, and he ought not to be asked to undertake very much work of this kind.

THE NEED OF MORE EFFECTIVE CHARITY ORGANIZATION.

This city is unfortunate in that it has no central private organization which has secured the confidence of the great majority of the charitable public. Good work can not be done without such a centralized force, which insures the coöperation of the public and private charitable agencies one with another, which acts as a bureau of information to all charitably interested in the poor of the city, and as a clearing house of charities to prevent duplicate work and the overlapping of relief.

It was erroneously supposed by some that the superintendent of charities, when appointed, would act as such a centralizing influence. But this work of effectively organizing the public and private charities of the city is one beyond the power of any public official. It has been, and no doubt will hereafter be, the duty of the superintendent of charities to offend many people, whereas an agency which is to organize the charities of the city must have the friendship and coöperation of all. A society with a guaranteed income of $4,000 a year for administration purposes, and the hearty support of our best and most intelligent citizens, would do more for the charities of the District and consequently for the District poor, than any public official that could be appointed, or than any appropriation that Congress could possibly make.

THE SUPERINTENDENT'S OFFICE.

During the fiscal year for which this report is made the superintendent of charities, in the discharge of the duties imposed on him by law, has written 319 letters, received 381; has made 208 calls on persons outside the office; has received 188 calls at the office; has paid 94 visits to institutions, and has attended 36 meetings of the boards of man-

agers or trustees or other official bodies connected with the charities of the District.

The limitation which obliged the president to appoint some one for this office from outside the District is a source of irritation to many, and in view of the other limitations imposed by the act creating his office, should possibly be repealed. The history of the organization of State boards of charities shows that such bodies have frequently gone outside the State to get a man for the work, because one of larger experience could be found by this method. It is on the same principle that charity organization societies frequently call a man from a distance to act as general secretary; on the same principle that churches summon pastors from a distance, or that boards of school trustees get the most competent superintendent they can hear of, whether he be a resident of their particular city or not.

But in view of the rapidity with which this department has recently grown, and of the fact that by many the superintendency of charities was looked upon as a temporary expedient for getting a neglected department into better administrative shape, it would seem that it might be the wisest course not to tinker with the office, but to abolish it and to establish something more nearly like that which is found in the several States, namely, a district board of charities and corrections.

At the proper time a bill having this object in view will be presented to the Commissioners, and through them to Congress. Such a board should have full powers of investigation, and report regarding all charitable and correctional institutions in the District which are in anywise connected with the Government or with Government appropriations. It should possibly contain representatives of the boards of management of the Washington Asylum, of the jail, of the Reform School for Boys, the Reform School for Girls, the Board of Children's Guardians, and the Municipal Lodging House. It should especially have power to inquire into and to further organize the system of medical charities in the District—meaning by this all those that serve the District poor and receive public money. Such a board should further have an expert secretary at a salary not less than that now paid the superintendent of charities.

A NATIONAL BUREAU OF CHARITIES AND CORRECTIONS.

Another matter in which Congress should be interested at the earliest possible day is the establishment of a National Bureau of Charities and Corrections, an office something like that which now deals with matters of education. A large number of the States already have State boards of charity and a central bureau could do much to improve their work, to introduce better methods, and to facilitate their mutual acquaintance.

It is to be hoped that this matter will be brought prominently forward at the National Conference of Charities and Corrections to be held in connection with the World's Columbian Exposition.

TABLE 13.—*Summary of estimates and appropriations for 1893, and estimates recommended for the fiscal year ending June 30, 1894.*

Institution or fund.	Estimate, 1893.	Appropriation, 1893.	Estimate, 1894.
For the relief of the poor	$16,000	$14,000	$14,000
Temporary support of indigent persons	.....	.....	4,000
Temporary Home for Soldiers and Sailors, G. A. R.	3,500	2,500	2,500
Young Women's Christian Home	.....	1,000	.....
Hope and Help Mission	.....	1,000	.....
Night Lodging-House Association	.....	400	.....
Police distribution	.....	500	.....
National Temperance Home	.....	2,000	.....
Municipal lodging house and wood yard	8,000	4,000	6,000
The Woman's Christian Association	4,250	4,000	4,000
Medical charities (not provided for in item No. 1):			
Central Dispensary and Emergency Hospital	3,500	4,500	25,000
Columbia Hospital for Women	20,000	20,000	20,000
Children's Hospital	10,000	10,000	10,000
National Homeopathic Hospital Association	7,000	7,000	7,000
Freedmen's Hospital*	.....	.....	85,325
Institutions for children (including industrial and reformatory):			
Church Orphanage of St. John's Parish	2,000	2,000	.....
German Orphan Asylum	2,000	2,000	.....
National Association for the Relief of Destitute Colored Women and Children	10,000	10,000	.....
Colored foundlings	4,000	3,000	.....
St. Ann's Infant Orphan Asylum	7,000	6,500	.....
Washington Hospital for Foundlings	6,000	6,000	.....
St. Joseph's Male Orphan Asylum	.....	2,000	.....
Home for Friendless Girls	.....	250	.....
The care of feeble-minded children	3,400	4,300	.....
The Association for the Works of Mercy	2,000	2,000	.....
The House of the Good Shepherd	3,000	3,000	.....
The Industrial Home School	13,000	13,000	.....
St. Rose's Industrial School	2,500	5,000	.....
The Board of Children's Guardians	.....	.....	59,000
The Girls' Reform School	75,000	35,000	23,543
Total	202,150	164,950	260,368

*Not previously included in the District estimates.

CONCLUSION.

From Table 13 it will be seen that the estimates for the next year are about the same in amount as the amounts actually provided for the current year, leaving out of view, of course, those items which appear in this bill or this part of this bill for the first time. It has seemed that reorganization rather than growth by means of more money was what our charities needed at the present time. While the amount remains the same the number of separate items estimated for is reduced from twenty-seven to eleven. This is in the line of simplification and more businesslike organization of the department and will enable hurried committees to understand its needs more readily and more fully. Heretofore the work on this section of the appropriation bill has resembled that which would be necessary if it was sought, in providing for other departments of the city government, to incorporate in the bill an indefinite number of special contracts with private parties. It is hoped that hereafter matters will be so presented that this section need cause no more vexation to the Congressional committees than that which falls to their lot in considering other parts of the District appropriation bill.

With renewed thanks for kindness shown me by those with whom I have dealt, and especially by yourselves, this report is respectfully submitted.

AMOS G. WARNER,
Superintendent of Charities.

The COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 10.

CONTINGENT EXPENSES OF THE TREASURY DEPARTMENT.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

A report of the contingent expenses of his Department for the fiscal year ending June 30, 1892.

DECEMBER 6, 1892.—Referred to the Committee on Expenditures in the Treasury Department and ordered to be printed.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, D. C., December 5, 1892.

SIR: In compliance with the requirements of section 193 of the Revised Statutes of the United States, I have the honor to transmit herewith a report of contingent expenses of this Department for the fiscal year ended June 30, 1892.

Respectfully yours,

CHARLES FOSTER,
Secretary.

Hon. CHARLES F. CRISP,
Speaker of the House of Representatives.

Contingent expenses, Treasury Department, 1892.

BINDING, NEWSPAPERS, ETC.

For newspapers, law books, city directories, and other books of reference; purchase of material for binding important records (and of the amount appropriated not more than four hundred dollars may be used in the purchase of the technical publications, foreign and domestic), two thousand five hundred dollars.—Legislative act, March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
July 24	M. L. Ferguson	1 copy of Cram's Atlas of the World		$15.00
27	Wm. B. Dana & Co	Subscription to 4 copies of Commercial and Financial Chronicle.		40.80
27	The Toledo Blade Co	Subscription to Daily Blade		5.00
27	The Ohio State Journal	Subscription to Daily Ohio State Journal.		10.00
27	Ticknor & Co	Subscription to American Architect, 2 copies.		35.00
27	Eugene H. Perdue	Subscription to Cleveland Daily Leader.		12.00
27	National Railway Publishing Co.	Subscription to Official Railway Guide.		68.00
27	G. G. Howland	Subscription to New York Herald	$10.00	
1892.				
July 12	------do	1 copy of New York Herald, June 27, 1891.	1.00	
				11.00
1891.				
July 27	The Maritime Register Publishing Co.	Subscription to New York Maritime Register.		25.00
27	Army and Navy Journal	Subscription to 2 copies of Army and Navy Journal,		12.00
27	J. H. Hickcox	Subscription to monthly catalogue of U. S. Government publications,		5.00
27	Homans Publishing Co	Subscription to 2 copies of Bankers' Magazine.		10.00
27	The Inland Publishing Co	Subscription to Inland Architect		8.00
27	The Washington Post Co	Subscription to Daily and Sunday Post.		8.00
27	The Electrical World	Subscription to Electrical World		3.00
27	The New York Daily Bulletin Association.	Subscription to 2 copies of New York Daily Commercial Bulletin.		24.00
27	Marine Journal Co	Subscription to Marine Journal		2.00
27	The Journal of Commerce	Subscription to Journal of Commerce.		15.00
27	Publisher of Decorator and Furnisher.	Subscription to Decorator and Furnisher.		4.00
27	David Williams	Subscription to Iron Age Weekly		4.50
27	B.F. Stevens, London, England.	Subscription to sundry publications.		24.79
27	The Commercial Gazette Co.	Subscription to Commercial Gazette.		14.00
27	Enquirer Co	Subscription to Cincinnati Enquirer.		14.00
1891.				
Aug. 8	M. E. Mann	3 Appleton's Annual Cyclopedia	22.00	
Sept. 5	------do	Earth and its Inhabitants, Seward's works, and Annual Encyclopedia.	21.00	
1892.				
Apr. 19	------do	1 copy of vol. 2 of Reclu's North America.	6.00	
June 14	------do	1 copy Annual Cyclopedia	6.00	
				55.00
1891.				
Aug. 14	Thos. Garnar & Co	Sundry binders' materials		321.85
14	Seaboard	1 copy of Seaboard		2.00
14	August Brentano	1 Academic Dictionary	1.75	
Nov. 19	------do	1 Webster's Academic Dictionary	1.75	
1892.				
Mar. 25	------do	1 French-English and 1 English-German dictionary.	8.00	
				11.50
1891.				
Aug. 14	The Electricity Newspaper Co.	Subscription to Electricity		2.35
14	Chicago Herald Co	Subscription to Chicago Herald		8.00
14	The Sunday Gazette	Advertising proposals for binders' materials.		2.33
Sept 1	C. C. Potts	1 set (4 vols.) People's Cyclopedia		24.00
7	Virginia Penny	1 copy Think and Act, and 1 copy of How Woman can Make Money.		3.00

Contingent expenses, Treasury Department, 1892—Continued.

BINDING, NEWSPAPERS, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Sept. 7	Electrical Review	1 copy of The Dynamo and 1 copy of The Electric Motor.		$4.00
7	C. Solon Stevenson	1 copy of Rand & McNally's Business Atlas.		10.00
10	W. Andrew Boyd	1 copy Minneapolis, 1 copy St. Paul, and 2 copies Cleveland directories.		20.00
16	The W. J. Johnston Co., Limited.	2 publications on electricity		4.50
Nov. 23	C. D. Alderson	1 Standard Reference Atlas		9.00
Dec. 10	Chas. L. Condit	1 volume of Century Dictionary	$12.50	
17	do	do	12.50	
				25.00
17	E. Steiger & Co	1 Stieler's Hand Atlas, including expressage.		7.02
23	Charles Scribner's Sons	1 copy Scribner Black Atlas		22.50
24	T. W. & C. B. Sheridan	1 Perfect Gem cutter with extra knife.		170.00
1892.				
Jan. 29	E. T. Platt	6 Bullman's Postal and Shipping Guides.		13.50
Feb. 24	Mary R. Wilcox	1 copy of Mexican war, by Gen. Wilcox.		3.50
24	The Rural Publishing Co	1 copy of American Garden		1.00
24	John Campbell & Co	Sundry binders' materials		83.37
27	Brown & Peed	1 copy of Butler's Book, by B. F. B		5.25
Mar. 25	Wm. T. Comstock	1 copy of Architecture and Building.		2.00
Apr. 8	H. A. Van Winkle	1 copy of Speeches of B. Harrison		2.00
19	W. H. Foy	1 copy of Nautical Directory		6.00
May 3	Geo. P. Rowell & Co	1 copy of American Newspaper Directory.		5.00
11	Geo. F. Cram	1 copy of Standard Atlas	12.50	
July 18	do	do	12.50	
				25.00
May 23	James Gospill's Sons	3 copies of Philadelphia City Directory.		16.20
28	C. K. Caron	1 copy of Louisville City Directory		5.50
28	L. Soards	2 copies of New Orleans City Directory.		12.50
June 4	J. H. Chataigne	1 copy of Richmond City Directory		5.00
9	Francis Miller	½ gallon alcohol		1.15
21	J. F. Diffenbacher	2 copies of Pittsburg City Directory.		10.00
21	Wm. H. Thornton	1 copy Lincoln and Men of War Times.		2.00
29	Lam & Healey	3 copies of Brooklyn City Directory,		18.00
July 2	Chas. E. Lawrence	2 copies of Picturesque California		30.00
12	Williams & Co	3 copies of Cincinnati City Directory.		15.00
12	Sampson, Murdock & Co	3 copies of Boston City Directory		16.00
14	Trow Directory Printing and Bookbinding Co.	3 copies of New York City Directory.		22.00
29	A. G. Wight	1 copy of Milwaukee City Directory.		5.00
Aug. 5	Estes & Lauriat	1 lot of books, per list		337.28
22	Hoye Directory Co	2 copies of Kansas City Directory		12.00
22	Jas. L. Barbour & Son	¼ barrel germ flour		3.30
26	Reuben & Donnelly	3 copies of Chicago City Directory		24.30
Sept. 3	Cleveland Directory Publishing Co.	2 copies of Cleveland City Directory.		11.00
1891.				
Aug. 1	W. H. Cooper	New York Herald, Times, and Tribune for July, 1891.	3.00	
Sept. 10	do	New York Herald, Times, and Tribune for August, 1891.	3.00	
Nov. 7	do	New York Herald, Times, and Tribune, for October, 1891.	3.00	
Dec. 10	do	New York Herald, Times, and Tribune for November, 1891.	3.00	
1892.				
Jan. 14	do	New York Herald, Times, and Tribune for December, 1891.	3.00	
Feb. 8	do	New York Herald, Times, and Tribune for January, 1892.	3.00	
Mar. 12	do	New York Herald, Times, and Tribune for February, 1892.	3.00	
May 5	do	New York Herald, Times, and Tribune for March, 1892.	3.00	

Contingent expenses, Treasury Department, 1892—Continued.

BINDING, NEWSPAPERS, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
May 5	W. H. Cooper	New York Herald, Times, and Tribune for April, 1892.	$3.00	
June 9	do	New York Herald, Times, and Tribune for May, 1892.	3.00	
July 12	do	New York Herald, Times, and Tribune for June, 1892.	3.00	
				$33.00
May 28	R. L. Polk & Co	1 copy of Indianapolis City Directory.	5.00	
28	do	3 copies of Baltimore City Directory.	18.75	
				23.75
1891.				
Oct. 23	G. & C. Merriam & Co	1 Webster's International Dictionary.	8.10	
23	do	do	8.10	
23	do	do	8.10	
1892.				
Jan. 25	do	do	8.10	
Mar. 22	do	do	8.10	
Apr. 19	do	3 Webster's International Dictionaries.	24.30	
May 16	do	1 Webster's International Dictionary.	8.10	
July 14	do	do	8.10	
				81.00
27	West Publishing Co	Subscription to 2 copies Monthly Digest.	8.00	
27	do	Subscription to 4 copies Federal Reporter.	40.00	
Aug. 14	do	1 copy No. 6, Vol. 44, Fed	.50	
				48.50
Mar. 25	Rand, McNally & Co	3 copies Bankers' Directory	18.00	
Apr. 14	do	1 copy of Business Atlas	7.50	
				25.50
Aug. 22	Estes & Lauriat	Sundry publications	2.75	
Sept. 28	do	Miscellaneous book as per list	88.36	
				91.11
1891.				
Aug. 14	Jas. L. Barbour & Son	½ barrel flour	3.30	
June 9	do	do	3.30	
				6.60
Aug. 14	W. H. Morrison	1 Webster's International Dictionary.	9.25	
14	do	do	9.25	
14	do	do	9.25	
Sept. 16	do	do	9.25	
Oct. 1	do	do	9.25	
				46.25
Aug. 25	W. H. Loudermilk & Co	2 copies Webster's Unabridged Dictionary.	18.50	
Sept. 1	do	1 Haswell pocketbook	4.00	
10	do	1 copy Colton's General Atlas	18.00	
16	do	4 Webster's International Dictionaries.	37.00	
19	do	4 copies Rand & McNally's and 2 copies Homan's Bankers' Directories.	33.00	
22	do	1 Webster's International Dictionary.	9.25	
Oct. 29	do	Sundry publications	7.00	
1892.				
Jan. 16	do	20 copies Washington City Directory.	97.00	
26	do	3 copies Washington City Directory.	14.55	
Feb. 8	do	4 copies Homan's Bankers' Almanac.	16.00	
8	do	1 copy Washington City Directory.	4.85	
8	do	1 Boyd's City Directory and Elme's Executive Department, United States.	7.85	
8	do	1 Washington City Directory	4.85	
15	do	do	4.85	
24	do	1 Brightley's Digest of Pennsylvania Reports.	5.00	
Mar. 12	do	1 Boyd's Washington Directory	4.85	
12	do	Laws of Oregon, 2 volumes	13.50	
Apr. 13	do	5 volumes Supreme Court Reports.	10.00	

Contingent expenses, Treasury Department, 1892—Continued.

BINDING, NEWSPAPERS, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
May 13	W. H. Loudermilk & Co	1 copy Manual of Congressional Practice.	$3.50	
July 14	------do	Morse on Banks and Banking, 2 volumes.	10.50	
Nov. 5	------do	Tucker's Notes on Revised Statutes.	9.00	
				$333.05
	R. L. Polk & Co	1 city directory. Account referred to First Auditor for settlement.		6.00
		Expended		2,460.75
		Outstanding accounts		25.50
		Unexpended		13.75
		Appropriation	2,500.00	2,500.00

INVESTIGATION OF ACCOUNTS AND TRAVELING EXPENSES, 1892.

For investigation of accounts and records, including the necessary traveling expenses, and or other traveling expenses, $700.—Legislative act March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
July 14	Fred Bracket	Traveling expenses		$34.25
20	------do	------do		46.65
Sept. 1	M. L. Muhleman	------do		9.20
1	A. T. Huntington	------do		21.45
3	A. B. Nettleton	------do		68.03
3	H. L. Earle	------do		114.23
Oct. 17	J. W. Whelpley	------do		15.25
Nov. 24	J. N. Patterson	------do		31.70
1892.				
Jan. 26	Fred. A. Stocks	------do		18.05
Mar. 25	E. H. Roberts	------do		17.00
Apr. 5	Fred. A. Stocks	------do		29.85
May 26	E. H. Roberts	------do		19.90
June 15	London Feast	------do		7.05
1891.				
July —	F. E. Johnson	------do		9.70
Dec. —	A. B. Nettleton	------do		42.25
		Expended		484.56
		Outstanding accounts		3.00
		Unexpended		212.44
		Appropriation	$700.00	
			700.00	700.00

FREIGHT, TELEGRAMS, ETC.

For freight, expressage, telegraph, and telephone service, three thousand five hundred dollars.—Legislative act, March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
Sept. 10	United States Express Co	Freight on 1 package from New York (Bureau of Statistics).		$0.50
10	Western Union Telegraph Co.	For cablegrams		6.20
22	Adams Express Co	Freight on 2 boxes from New York		1.20
Oct. 9	Chesapeake and Potomac Telephone Co.	Exchange rentals from July 1 to Sept. 30, 1891.		55.08
9	------do	------do		280.00
23	H. C. Ward	Freight on 1 box of chandelier fixtures.		.25
23	Western Union Telegraph Co.	For cablegram		5.15

Contingent expenses, Treasury Department, 1892—Continued.

FREIGHT, TELEGRAMS, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Oct. 29	Chesapeake and Potomac Telephone Co.	For 2 calls to Baltimore and 1 to Hyattsville.		$0.65
Nov. 18	Adams Express Co	Expressage on 7 packages		3.90
19	Peoples' Dispatch Co	Drayage and charges on 4 bundles from Baltimore and Ohio Depot.		.75
23	Western Union Telegraph Co.	Cablegrams to Shanghai and Bradford, England.		72.27
Dec. 10	do	Cablegram to London		2.48
21	Adams Express Co	Freight on 1 package to Kansas City.		.30
21	United States Express Co	Freight on 1 package from Erie, Pa.		.30
24	Adams Express Co	Freight on 3 packages from Chicago, Boston, and New York.		1.40
1892.				
Jan. 5	Chesapeake and Potomac Telephone Co.	Exchange rental for instruments, Oct. 1 to Dec. 31, 1891.		302.50
5	do	Exchange rental for instruments, Oct. 16 and 21 to Dec. 31, 1891.		62.38
8	Geo. W. Knox	Freight on cutting machine		5.20
8	United States Express Co	Freight on 1 box from and to Jackson, Miss.		4.00
9	Western Union Telegraph Co.	For cablegrams to London and Shanghai.		63.41
9	Chesapeake and Potomac Telephone Co.	For 4 calls—Fifth Auditor		.90
29	United States Express Co	Freight on 1 package from Erie		.95
Feb. 8	Geo. W. Knox	Drayage on 1 barrel boiler compound.		.50
13	Fred A. Stocks	Freight on 2 horses from Philadelphia.		12.50
24	United States Express Co	Freight on 1 package from Philadelphia		.30
24	Western Union Telegraph Co.	For 1 cablegram to Shanghai		13.06
Mar. 11	Adams Express Co	Freight on 4 packages and bundles		14.30
15	H. A. Cook	6 transmitters for telephones		15.00
25	United States Express Co	Freight on 1 package from Philadelphia.		.25
Apr. 4	Chesapeake and Potomac Telephone Co.	Exchange rental for instruments, Jan. 1 to Mar. 31, 1892.		373.00
18	Adams Express Co	Freight on 1 box from Columbus		3.00
19	United States Express Co	Freight on 4 packages and boxes		1.60
29	do	Freight on 1 box to Shreveport, La.		2.45
May 19	Western Union Telegraph Co.	For cablegrams to Madrid and Paris.		16.60
23	do	For cablegrams to London, Paris, Rome, and Southampton.		66.21
28	do	For cablegrams to Paris		8.84
June 9	do	For cablegrams to London and Paris.		5.28
July 2	United States Express Co	Freight on 7 boxes and bundles to various places.		14.96
12	Adams Express Co	Freight on 2 packages from New York.		.75
14	Chesapeake and Potomac Telephone Co.	Exchange rental for instruments to June 30, 1892.		363.93
14	do	For moving telephone 12 calls		10.60
14	Western Union Telegraph Co.	For cablegram to Paris		1.71
14	do	For cablegram to Christiana		3.06
Aug. 17	United States Express Co	Freight on 3 packages from New York.		.90
Sept. 3	Adams Express Co	Freight on 1 package from Philadelphia and 2 boxes from Annapolis.		1.20
Nov. 5	do	For express service, account referred to First Auditor for settlement.		13.00
		Expended		1,812.77
		Unexpended		1,687.23
		Appropriation	$3,500.00	
			3,500.00	3,500.00

Contingent expenses, Treasury Department, 1892—Continued.

RENT.

For rent of building, five thousand five hundred and twenty dollars.—Legislative act, March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
Aug. 10	C. C. Willard	For rent of fifth floor of Adams building, No. 1335 F street, July, 1891.	$195.83	
10	------do	For rent rooms 31, 35, and 36 Adams building, July, 1891.	60.00	
Sept. 7	------do	For rent of fifth floor of Adams building, August, 1891.	195.83	
7	------do	For rent rooms 31, 35, and 36 Adams building, August, 1891.	60.00	
Oct. 1	------do	For rent of fifth floor of Adams building, September, 1891.	195.83	
1	------do	For rent of rooms 31, 35, and 36 Adams building, September, 1891.	60.00	
Nov. 6	------do	For rent of fifth floor of Adams building, October, 1891.	195.83	
6	------do	For rent of rooms 31, 35, and 36 Adams building, October, 1891.	60.00	
Dec. 10	------do	For rent of fifth floor of Adams building, November, 1891.	195.83	
10	------do	For rent of rooms 31, 35, and 36 Adams building, November, 1891	60.00	
1892.				
Jan. 4	------do	For rent of fifth floor of Adams building, December, 1891.	195.83	
4	------do	For rent of rooms 31, 35, and 36 Adams building, December, 1891.	60.00	
Feb. 4	------do	For rent of fifth floor of Adams building, January, 1892.	195.83	
4	------do	For rent of rooms 31, 35, and 36 Adams building, January, 1892.	60.00	
Mar. 12	------do	For rent of fifth floor of Adams building, February, 1892.	195.83	
12	------do	For rent of rooms 31, 35, and 36 Adams building, February, 1892.	60.00	
Apr. 4	------do	For rent of fifth floor of Adams building, March, 1892.	195.83	
4	------do	For rent of rooms 31, 35, and 36 Adams building, March, 1892.	60.00	
May 5	------do	For rent of fifth floor of Adams building, April, 1892.	195.83	
5	------do	For rent of rooms 31, 35, and 36 Adams building, April, 1892.	60.00	
June 4	------do	For rent of fifth floor of Adams building, May, 1892.	195.83	
4	------do	For rent of rooms 31, 35, and 36 Adams building, May, 1892.	60.00	
July 2	------do	For rent of fifth floor of Adams building, June, 1892.	195.83	
2	------do	For rent of rooms 31, 35, and 36 Adams building, June, 1892.	60.00	
				$3,069.96
1891.				
Oct. 29	Allison Nailor, jr	For rent of premises for Treasury stables, No. 1418 E street, from July 1, to October 31, 1891, at $54.16 per month.	216.64	
1892.				
May 28	------do	For rent of premises for Treasury stables, No. 1418 E street, from November 1, 1891, to May 31, 1892, at $54.16 per month.	379.12	
July 12	------do	For rent of premises for Treasury stable, No. 1418 E street, from June 1, to June 30, 1892.	54.16	649.92
		Expended		3,719.88
		Unexpended		1,800.12
		Appropriated	5,520.00	
			5,520.00	5,520.00

Contingent expenses, Treasury Department, 1892—Continued.

HORSES, WAGONS, ETC.

For the purchase of horses and wagons for office and mail service, to be used only for official purposes, care and subsistence of horses, including shoeing, and for wagons, harness, and repairs of the same, $4,000.—Legislative act March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
Aug. 11	A. G. Supplee	1 gallon axle oil		$1.25
14	S. F. Ware	Sundry articles of horse medicine.		7.43
14	John W. Shaw	50 bushels oats, 2,000 pounds hay and 2,000 pounds of straw.	$65.00	
14	....do	100 bushels oats, 3,000 pounds hay.	78.50	
14	....do	50 bushels oats, 2,000 pounds of hay.	43.00	
25	....do	9⅜ bushels oats, 500 pounds of hay.	9.00	
				195.50
25	Geo. W. Knox	Use of wagon from July 6 to Aug. 8, 1891.		33.00
Sept. 22	Thos. E. Frazzere	Repairing carriage		26.00
Oct. 9	F. W. Grenfell	Professional attendance to horses.		15.00
Nov. 18	Wm. H. Blackwell	Clipping two horses		8.00
23	S. F. Ware	Witch hazel, spavin cure, and tincture of arnica.		5.35
1892.				
Jan. 9	Norman Bester	Board of horses		56.30
Feb. 5	Eli Kindig, jr	1 span of horses		850.00
5	J. E. Powell	Traveling expenses to Philadelphia and return.		16.05
8	James B. Lambie	4 long handle forks		2.40
15	A. G. Supplee	1 gallon axle oil		1.25
Mar. 2	W. A. Pate	50 pounds rock salt		.75
25	....do	....do		.75
Apr. 22	Lutz & Bro	1 set Concord double harness		60.00
22	S. F. Ware	Sundry horse medicines		9.83
29	Pettit & Dripps	1 sewer grate in Treasury stables.		1.07
May 12	Andrew J. Joyce's Sons	1 set new axles and boxes and repairs to wheels.		35.00
23	F. W. Grenfell	Professional attendance to horses.		17.50
June 9	A. G. Supplee	1 gallon axle oil		1.25
29	S. F. Ware	½ dozen packages condition powders.		.85
Aug. 5	S. J. Meeks	1 light 3-spring wagon		130.00
1891.				
Aug. 14	C. Becker	1 nickel bit		1.75
Dec. 10	....do	1 English holly lash whip		4.50
1892.				
Feb. 15	....do	1 gallon neatsfoot oil and 1 can of sperm oil.		2.10
15	....do	2 horse blankets		10.00
Mar. 4	....do	2 patented coach collars		8.00
Apr. 4	....do	2 steel bits		6.00
4	....do	Brushes, combs, mane cards and whip.		5.95
22	....do	1 steel eye and repairs		2.75
July 2	....do	1 saddle, 1 bridle, 1 bridle bit and saddle-cloth.		20.75
18	....do	6 mane brushes, combs, horse sheets, whip, and 1 pair ankle boots.		19.00
1891.				
Sept. 10	S. S. Daish & Son	3,500 pounds hay, 50 pounds rock salt, 100 bushels oats.		75.50
22	....do	100 bushels oats and 3,500 pounds hay.		75.00
Oct. 23	....do	....do		75.00
Nov. 18	....do	1,044 pounds hay and 35 bushels oats.		24.80
Aug. 14	J. H. Eubank	Repairs to harness	9.05	
Sept. 7	....do	....do	10.70	
Oct. 9	....do	....do	9.55	
Nov. 7	....do	....do	9.30	
Dec. 4	....do	....do	10.45	
1892.				
Jan. 4	....do	....do	9.65	
9	....do	....do	6.60	
Feb. 5	....do	....do	10.00	
Mar. 2	....do	....do	9.30	
Apr. 4	....do	....do	10.00	
May 11	....do	....do	10.00	
June 9	....do	....do	10.00	
22	....do	....do	7.00	
July 9	....do	....do	9.95	
				131.55

Contingent expenses, Treasury Department, 1892—Continued.

HORSES, WAGONS, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Nov. 9	Danenhower & Co	For horse feed	$89.97	
Dec. 10	do	do	73.68	
21	do	do	7.21	
29	do	do	85.30	
1892.				
Jan. 25	do	do	78.34	
Feb. 8	do	do	85.31	
24	do	do	76.68	
Mar. 22	do	do	102.31	
Apr. 19	do	do	73.68	
May 3	do	do	80.34	
23	do	do	73.68	
June 29	do	do	78.34	
July 2	do	do	105.47	
1891.				$1,010.31
Aug. 14	Phillips & Burns	For horseshoeing	25.50	
Sept. 7	do	do	24.50	
Oct. 9	do	do	24.75	
Nov. 23	do	do	25.25	
Dec. 10	do	do	24.75	
1892.				
Jan. 11	do	do	25.50	
Feb. 17	do	do	24.75	
Apr. 14	do	do	24.75	
May 11	do	do	24.75	
June 9	do	do	24.00	
July 23	do	do	25.50	
Mar. 11	do	do	24.75	
				298.75
1891.				
Sept. 16	John McDermott & Bro	Repairing 1 large office carriage	40.00	
22	do	Repairs to carriages and wagons	15.00	
Oct. 1	do	do	15.00	
8	do	do	15.00	
8	do	do	95.75	
Nov. 7	do	do	14.00	
9	do	4 boxes sperm coach candles	4.00	
Dec. 10	do	Repairs to carriages and wagons	15.00	
10	do	Painting and repairing carriages and wagons.	59.25	
1892.				
Jan. 9	do	Repairs to carriages and wagons	15.00	
25	do	do	12.50	
25	do	4 boxes of coach candles	5.00	
Feb. 8	do	Repairs to carriages and wagons	15.00	
15	do	do	6.00	
Mar. 11	do	do	15.00	
Apr. 4	do	do	15.00	
16	do	3 boxes of coach candles	3.00	
May 11	do	Repairs to carriages and wagons	9.00	
June 9	do	do	15.00	
11	do	do	29.50	
29	do	do	16.50	
July 12	do	do	15.00	
29	do	do	127.50	
Nov. 21	do	do	92.50	664.50
		Expended		3,910.74
		Unexpended		89.26
		Appropriation	4,000.00	
			4,000.00	4,000.00

Contingent expenses, Treasury Department, 1892—Continued.

ICE.

For the purchase of ice, $3,500.—Legislative act March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
	Wm. M. Reardon	Ice furnished Department from July 1, 1891, to June 30, 1892, at contract rates of 13¾ cents per 100 pounds, as per monthly vouchers on file, viz:		
		July, 1891, 137,345 pounds	$188.85	
		August, 1891, 139,570 pounds	191.90	
		September, 1891, 125,670 pounds	172.80	
		October, 1891, 113,150 pounds	155.58	
		November, 1891, 86,150 pounds	118.46	
		December, 1891, 94,000 pounds	129.25	
		January, 1892, 87,050 pounds	119.69	
		February, 1892, 83,595 pounds	114.94	
		March, 1892, 96,180 pounds	132.25	
		April, 1892, 102,580 pounds	141.05	
		May, 1892, 113,345 pounds	155.85	
		June, 1892, 144,470 pounds	198.65	
				$1,819.27
		Expended		1,819.27
		Unexpended		1,680.73
		Appropriation	3,500.00	
			3,500.00	3,500.00

FILE HOLDERS AND CASES.

For the purchase of file holders and file cases, $3,000.—Legislative act March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
Sept. 22	Libbey, Bittinger & Miller	3,000 feet shelving, dressed No. 1		$92.40
Nov. 9	James B. Lambie	14 gross file-box pulls		42.00
Dec. 10	Thos. Binnix	Furnishing and putting in 6 galvanized iron boxes.		6.25
1892.				
Jan. 14	James B. Lambie	2 pair brass quadrants		1.00
Feb. 15	John C. Parker	4 cap size favorite files		1.60
24	Libbey, Bittinger & Miller	500 feet No. 1 shelving		15.40
Mar. 1	Thos. W. Smith	1,100 feet Mahogany molding of different sizes.		33 00
4	Geo. Ryneal, jr	3 lights, glass		4.38
4	Libbey, Bittinger & Miller	1,000 feet No. 1 shelving		30.80
May 3	Thos. Binnix	Furnishing and putting up 31 pieces of galvanized iron.		12.50
3	Forsburg & Murray	3¾ pounds brass casting		1.50
13	Libbey, Bittinger & Miller	700 feet white pine		26.24
June 29	------do	200 feet white pine		5.72
1891.				
Sept. 1	E. W. Woodruff	150 Woodruff's imp. file holders	$67.50	
Oct. 23	------do	550 Woodruff's imp. file holders	235.00	
Nov. 7	------do	500 Woodruff's imp. file holders	200.00	
7	------do	400 Woodruff's imp. file holders	175.00	
Dec. 2	------do	472 Woodruff's imp. file holders	231.20	
29	------do	286 Woodruff's imp. file holders	114.40	
1892.				
Jan. 8	------do	50 Woodruff's imp. file holders	20.00	
Feb. 15	------do	250 Woodruff's imp. file holders	112.50	
May 12	------do	100 Woodruff's imp. file holders	45.00	
23	------do	250 Woodruff's imp. file holders	100.00	
28	------do	75 Woodruff's imp. file holders	30.00	
June 4	------do	100 Woodruff's imp. file holders	40.00	
25	------do	100 Woodruff's imp. file holders	50.00	
				1,420.60
1891.				
Aug. 14	Office Specialty Manufacturing Co.	1 Shannon file	2.00	
Sept. 16	------do	1 file cabinet	144.00	
19	------do	10 file boxes	3.10	
Oct. 1	------do	390 galvanized iron file boxes	183.30	
Nov. 7	------do	750 hang file boxes	262.50	
7	------do	36 hang file boxes	14.04	

Contingent expenses, Treasury Department, 1892—Continued.

FILE HOLDERS AND CASES—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Dec. 10	Office Specialty Manufacturing Co.	3 cases long suspension files	$142.50	
1892.				
Jan. 29	do	750 long poplar file boxes	262.50	
Mar. 1	do	119 file boxes	42.84	
11	do	300 file boxes	93.00	
22	do	75 file boxes	22.50	
Apr. 4	do	200 file boxes	70.00	
14	do	100 file boxes	49.00	
23	do	1 file box	.50	
29	do	24 file boxes	9.84	
May 3	do	1 file box	.50	
June 11	do	1 file box	.50	
				$1,302.62
		Expended		2,996.01
		Unexpended		3.99
		Appropriation	3,000.00	
			3,000.00	3,000.00

FUEL, ETC.

For the purchase of coal, wood, engine oils and grease, grates, grate baskets, and fixtures blowers, coal hods, coal shovels, pokers and tongs, $10,000.—Legislative act March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
Aug. 5	Brano Grosche	1 80-gallon perfection oil purifier		$75.00
14	Geo. F. Patterson	200 pounds trisodium phosphate		36.00
Oct. 29	J. W. Boteler & Son	1 dozen coal hods		4.50
Nov. 6	E. F. Brooks	1 brass fire set	$5.00	
6	do	1 pair brass andirons	3.50	
				8.50
7	Hayward & Hutchinson	1 set cast brass andirons		10.00
1892.				
Jan. 4	John W. Bechtel	1 new grate and repairing brick work.		7.90
4	Wm. F. Boogler	1 barrel Boogler boiler compound		27.50
4	J. H. Chesley & Co	½ dozen scoop shovels		2.95
Feb. 13	Hayward & Hutchinson	New grates, placing same in position, cleaning flues.		82.50
Mar. 12	do	1 grate and ash pan, placing in position.		6.00
Apr. 4	E. F. Brooks	1 wire fender for fireplace		4.00
26	Howard Morton	20 gallons No. 1 dynamo oil, 2 cans		9.00
July 12	T. W. Smith	1,503 feet Georgia pine		52.61
Aug. 26	The Binghamton Oil Refining Co.	2 barrels 50–100 gallons cardinal engine oil.	38.00	
26	do	2 barrels 50–100 gallon paragon cylinder oil.	60.00	
Sept. 22	do	1 barrel 50 gallons cylinder oil	30.00	
	do	1 barrel 50 gallons engine oil	19.00	
Mar. 2	do	2 barrels 100 gallons cylinder oil	60.00	
	do	1 barrel 50 gallons machine oil	19.00	
Apr. 16	do	1 barrel 50 gallons paragon cylinder oil.	30.00	
				256.00
1891.				
Aug. 10	C. C. Willard	Fuel and heating fifth floor of Adams building, July, 1891.	20.83	
Sept. 7	do	Fuel and heating fifth floor of Adams building, August, 1891.	20.83	
Oct. 1	do	Fuel and heating fifth floor of Adams building, September, 1891.	20.83	
Nov. 6	do	Fuel and heating fifth floor of Adams building, October, 1891.	20.83	
Dec. 10	do	Fuel and heating fifth floor of Adams building, November, 1891.	20.83	
1892.				
Jan. 4	do	Fuel and heating fifth floor of Adams building, December, 1891.	20.83	
Feb. 4	do	Fuel and heating fifth floor of Adams building, January, 1892.	20.83	

Contingent expenses, Treasury Department, 1892—Continued.

FUEL, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
Mar. 12	C. C. Willard	Fuel and heating fifth floor of Adams building, February, 1892.	$20.83	
Apr. 4	....do	Fuel and heating fifth floor of Adams building, March, 1892.	20.83	
May 5	....do	Fuel and heating fifth floor of Adams building, April, 1892.	20.83	
June 4	....do	Fuel and heating fifth floor of Adams building, May, 1892.	20.83	
July 2	....do	Fuel and heating fifth floor of Adams building, June, 1892.	20.83	
				$249.96
1891.				
Aug. 21	Thos. Binnix	Repairing fireplaces and hearth of fire grate.	15.50	
25	....do	Repairing fireplace in room No 4, first floor.	6.00	
Sept. 7	....do	Repairing fireplace and furnishing new grate	10.00	
Oct. 9	....do	....do	9.75	
9	....do	Repairing fireplace and grate	8.50	
Dec. 10	....do	1 ash pan	1.00	
10	....do	1 blower for grate	2.75	
10	....do	1 open fire grate, 1 blower, 1 ash pan.	5.75	
				59.25
10	....do	New fender in front of fire grate	9.25	
10	....do	Repairing fireplace, putting in new fire brick.	9.50	
10	....do	Repairing fireplace and grate	5.50	
21	....do	Furnishing material and repairing fireplaces.	19.00	
23	....do	Furnishing and putting in bricks in fireplaces.	7.00	
23	....do	Repairing grate	.50	
23	....do	Furnishing new grate	1.26	
1892.				
Feb. 4	....do	1 blower for grate, 1 brass hood	8.00	
24	....do	Repairing fireplace	8.00	
Mar. 12	....do	Furnishing and putting in new grate, cleaning flue.	8.50	
Apr. 14	....do	Furnishing and putting in new grate and fire brick.	9.50	
July 9	....do	Furnishing 6 galvanized iron ash barrels.	21.00	
				107.00
1891.				
Nov. 7	Wm. E. Hodge	10 cords wood, $50; $185\frac{520}{2240}$ tons Cumberland coal, $605.81.	655.81	
Dec. 26	....do	400 tons Cumberland coal	1,308.00	
1892.				
Jan. 8	....do	250 tons Cumberland coal	817.50	
Feb. 5	....do	$164\frac{1650}{2240}$ tons Cumberland coal, $538.69; and 10 cords oak wood, $50.	588.69	
6	....do	16 cords oak and 1 cord pine wood	85.05	
Mar. 9	....do	16½ cords oak and pine wood	82.39	
24	....do	250 tons Cumberland coal	817.50	
Apr. 7	....do	....do	817.50	
29	....do	10 cords pine and 2 cords oak wood	50.00	
May 12	....do	200 tons Cumberland coal	654.00	
June 25	....do	150 tons Georges Creek coal	490.50	
30	....do	$12\frac{800}{2440}$ tons Cumberland coal, $40.55; 3 cords pine wood, $15.05.	55.60	
				6,422.54
1891.				
Oct. 9	American Ice Co	50 tons furnace coal	234.50	
Nov. 6	....do	10 tons Shamokin egg coal	46.90	
18	....do	119 tons furnace coal	558.11	
Dec. 10	....do	10 tons Shamokin egg coal	46.90	
19	....do	31 tons furnace cool	145.39	
1892.				
Jan. 22	....do	15 tons Shamokin coal, $70.35; 50 tons furnace coal, $234.50.	304.85	
Feb. 17	....do	50 tons furnace coal	234.50	
17	....do	12 tons Shamokin egg coal	56.28	
Mar. 2	....do	....do	56.28	
2	....do	50 tons furnace coal	234.50	
Apr. 4	....do	....do	234.50	
14	....do	12 tons Shamokin egg coal	56.28	

Contingent expenses, Treasury Department, 1892—Continued.

FUEL, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
May 3	American Ice Co	50 tons furnace coal	$234.50	
July 14	------do	10 tons furnace coal	46.90	
				$2,490.39
1891.				
Aug. 14	James B. Lambie	2 National 3-inch flue scrapers	5.00	
Nov. 7	------do	1 scoop shovel, $1.25; 1 wheelbarrow, $11.25.	12.50	
Dec. 10	------do	1 fire set and 1 set fire irons	3.50	
1892.				
July 14	------do	Sundry articles of hardware	19.25	
Aug. 5	------do	For 9 wire fenders	20.25	60.50
		Expended		9,972.10
		Outstanding accounts		5.05
		Unexpended		22.85
		Appropriation	10,000.00	
			10,000.00	10,000.00

GAS, ETC.

For purchase of gas, electric light, gas brackets, candles, candlesticks, droplights, and tubing, gas-burners, gas torches, globes, lanterns, and wicks, $16,000.—Legislative act March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
Sept. 10	Schultz, G. F. and A. M. Co	Sundry articles of fixtures		$11.00
Nov. 23	Benj. F. Butler	Gas-fixtures in Butler building		134.50
Dec. 10	James B. Lambie	2 pair 6-inch gas-burner plyers		1.00
1892.				
Jan. 7	Ernest Raum	1 lot of gas-fixtures		43.00
Feb. 24	The Siemens-Lungren Co	Lamp, burners, and wrenches		45.75
Mar. 2	Bell & Dyer	200 feet 1¼ wire molding and cap		2.30
May 5	Excelsior Gas Governor Co.	6 dozen Excelsior gas governors		18.00
Oct. 15	People's Gas-Saving Association.	Rental of 4 improved gas governors	$45.55	
15	------do	------do	44.78	
15	------do	------do	45.86	
Dec. 16	------do	Rental of 3 improved gas governors	45.24	
				181 43
1891.				
Oct. 9	E. F. Brooks	4 gross brass pillars and 4 gross lava tips.	6.20	
9	------do	8 pendants with globes	46.50	
Nov. 6	------do	1 dozen argand burners	3.75	
6	------do	1 dozen gum sockets	1.10	
7	------do	1 dozen ⅜-inch independent connections.	3.50	
10	------do	6 dozen wire globe-holders	1.20	
1892.				
Jan. 14	------do	2 dozen porcelain shades and 2 dozen chimneys.	5.30	
Feb. 8	------do	Burner cocks, nozzles, bracket, etc.	13.78	
8	------do	1 dozen gum sockets	1.10	
8	------do	6 dozen wire globe holders	1.32	
May 11	------do	132 feet mohair tubing	7.92	
				91.67
1891.				
July 27	J. W. Bauket & Co	Placing 3 electric lights in boiler room.	20.00	
27	------do	Placing electric lights in Public Moneys Division.	5.00	
Aug. 14	------do	6 brackets for electric lights in Architect's Office.	20.00	
14	------do	Electric wiring, sockets, etc., in annex of Supervising Architect's Office.	390.00	
Sept. 18	------do	Introducing electric lights in sundry rooms, Treasury building.	281.75	
Oct. 1	------do	Wiring and placing in position 2 blocks with attachments.	30.00	
9	------do	1 green shade for electric lights	1.00	

Contingent expenses, Treasury Department, 1892—Continued.

GAS, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Nov. 7	J. W. Bauket & Co	1 porcelain bell shade, and adjusting balls and handles.	$3.70	
Dec. 21	do	New carbon tips for brushes	.50	
1892.				
Mar. 17	do	Sundry electrical supplies	17.52	
30	do	do	13.45	
Aug. 29	do	Furnishing material and labor for electric light in room No. 5, basement floor.	436.00	
				$1,218.92
1891.				
Sept. 19	Royce & Marean	6 k. w. cut-outs and 24 porcelain insulators.	2.34	
Oct. 1	do	Sundry electrical supplies	10.39	
1	do	do	18.60	
15	do	1 electric light bracket and 250 feet okenite wire.	17.00	
23	do	Furnishing and putting up one electric bracket.	5.00	
23	do	Furnishing and putting up 5 double-pole swithes.	21.50	
Nov. 9	do	100 feet incandescent-light cord	3.33	
				78.16
Dec. 2	do	4 glass shades for electric lights and holders.	2.25	
21	do	12 gas attachments and 12 shade-holders.	2.44	
1892.				
Feb. 24	do	6 double-pole main-line cut-outs	4.62	
Mar. 11	do	Sundry electrical supplies	22.30	
May 28	do	6-key receptacles	2.40	
June 9	do	200 feet No. 12 okenite wire	7.00	
July 12	do	1 portable electric-light fixture	10.00	
12	do	2 rolls okenite tape	1.50	
Aug. 29	do	Electric wiring	580.00	
				632.51
1891.				
Aug. 10	Washington Gaslight Co	Gas consumed during July, 1891	450.00	
Sept. 4	do	Gas consumed during August, 1891	452.00	
Oct. 3	do	Gas consumed during September, 1891.	431.50	
Nov. 6	do	Gas consumed during October, 1891.	618.75	
Dec. 10	do	Gas consumed during November, 1891.	903.00	
1892.				
Jan. 6	do	Gas consumed during December, 1891.	877.00	
Feb. 4	do	Gas consumed during January, 1892.	826.50	
Mar. 4	do	Gas consumed during February, 1892.	815.00	
Apr. 4	do	Gas consumed during March, 1892	742.75	
29	do	35 feet 1½-inch gas pipe, etc., in photograph gallery.	8.75	
May 3	do	Gas consumed during April, 1892	682.38	
June 9	do	Gas consumed during May, 1892	514.00	
July 5	do	Gas consumed during June, 1892	404.50	
				7,726.13
1891.				
Aug. 14	United States Electric Lighting Co.	Use of 4 electric arc lights and 21,192 amperes of current.	381.90	
Sept. 7	do	Use of 4 electric arc lights and 25,548 amperes of current.	446.90	
Oct. 9	do	Use of 4 electric arc lights and 30,824 amperes of current.	517.93	
Nov. 7	do	Use of 4 electric arc lights and 29,644 amperes of current.	497.45	
Dec. 10	do	Use of 4 electric arc lights and 34,968 amperes of current.	569.73	
1892.				
Jan. 4	do	Use of 4 electric arc lights and 33,552 amperes of current.	543.03	
Feb. 4	do	Use of 4 electric arc lights and 35,584 amperes of current.	556.09	
Mar. 4	do	Use of 4 electric arc lights and 23,904 amperes of current.	397.73	
Apr. 4	do	Use of 4 electric arc lights and 33,512 amperes of current.	535.06	
May 3	do	Use of 4 electric arc lights and 25,504 amperes of current.	423.50	

Contingent expenses, Treasury Department, 1892—Continued.

GAS, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
June 4	United States Electric Lighting Co.	Use of 4 electric arc lights and 24,112 amperes of current.	$401.69	
July 5	------do------	Use of 4 electric arc lights and 20,186 amperes of current.	347.64	
				$5,618.65
		Expended		15,803.02
		Unexpended		196.98
		Appropriation	16,000.00	16,000.00

CARPETS AND REPAIRS.

For purchase of carpets, carpet border and lining, linoleum mats, rugs, matting, and repairs, and for cleaning and relaying of the same by contract, six thousand five hundred dollars.—Legislative act, March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
Aug. 14	A. H. Chace & Bro.	489 yards carpet cleaned, at 1¾ cents.	$8.56	
Sept. 26	------do------	516 yards carpet cleaned, at 1¾ cents.	9.03	
26	------do------	1,251 yards carpet cleaned, at 1¾ cents.	21.89	
26	------do------	746 yards carpet cleaned, at 1¾ cents.	13.06	
26	------do------	116 yards carpet cleaned, at 1¾ cents.	2.03	
26	------do------	30 yards carpet cleaned, at 1¾ cents.	.53	
26	------do------	31 yards carpet cleaned, at 1¾ cents.	.55	
Oct. 9	------do------	946 yards carpet cleaned, at 1¾ cents.	16.53	
Nov. 6	------do------	629 yards carpet cleaned, at 1¾ cents.	11.01	
Dec. 17	------do------	2,200 yards carpet cleaned, at 1¾ cents.	38.50	
1892.				
Feb. 24	------do------	328 yards carpet cleaned, at 1¾ cents.	5.74	
Jan. 9	------do------	1,887 yards carpet cleaned, at 1¾ cents.	33.04	
29	------do------	184 yards carpet cleaned, at 1¾ cents.	3.22	
29	------do------	52 yards carpet cleaned, at 1¾ cents.	.91	
				$164.60
1891.				
July 27	Frank Freeman	Making and laying carpet	51.20	
27	------do------	------do------	16.76	
27	------do------	------do------	17.15	
27	------do------	Taking up carpet	33.36	
31	------do------	Laying carpet and matting	8.54	
Aug. 13	------do------	Making and laying carpet	72.24	
Oct. 7	------do------	------do------	113.78	
10	------do------	------do------	54.33	
23	------do------	Making 6 carpet rugs	3.00	
27	------do------	Making and laying carpet	124.98	
Nov. 3	------do------	Relaying carpet	1.47	
7	------do------	Relaying and making carpet	61.00	
20	------do------	Making and laying carpet	154.32	
23	------do------	Placing 15 feet zinc ends	3.50	
Dec. 1	------do------	Making 12 carpet rugs, at 50 cents.	6.00	
1	------do------	Making and laying carpet	105.95	
17	------do------	------do------	48.40	
1892.				
Jan. 5	------do------	------do------	33.27	
Feb. 1	------do------	------do------	5.36	
1	------do------	Making 24 rugs, at 50 cents	12.00	
24	------do------	Making 2 carpet rugs, at 50 cents	1.00	
24	------do------	Relaying carpet	7.20	
Mar. 4	------do------	Making, cutting, and relaying carpet.	5.06	
4	------do------	Making 2 carpet rugs, at 30 cents	.60	
25	------do------	Making 2 rugs, at 70 cents	1.40	
June 9	------do------	Cutting and fitting carpet	1.00	
21	------do------	Making and laying carpet	10.41	
July 5	------do------	Laying matting	2.15	
				955.43
1891.				
Aug. 14	Julius Lansburgh	70 yards linoleum, at 65 cent	45.50	
14	------do------	202 yards straw matting, at 49 cents	98.98	
14	------do------	43½ yards linoleum, at 72 cents	31.32	
14	------do------	115 yards straw matting, at 49 cents	56.35	

Contingent expenses, Treasury Department, 1892—Continued.

CARPETS AND REPAIRS—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Sept. 16	Julius Lansburgh	26 yards linoleum, at 72 cents	$18.72	
Nov. 11	do	20 yards linoleum, at 72 cents	14.40	
Dec. 7	do	302 yards linoleum, at 75 cents	226.50	
17	do	50 yards fringe, at 15 cents	7.50	
17	do	75 pieces linoleum, at 12½ cents	9.38	
17	do	40 yards matting, at 49 cents	19.60	
29	do	10 yards linoleum, at 75 cents	7.50	
1892.				
Feb. 8	do	50 yards fringe, at 15 cents	7.50	
8	do	10 yards linoleum, at 75 cents	7.50	
Mar. 4	do	19 yards linoleum, at 75 cents	14.25	
				$565.00
Aug. 14	Strawbridge & Clothier	3 dozen rugs, at $62	186.00	
Sept. 16	do	2 dozen W. B. mats, at $26	52.00	
Nov. 18	do	1 dozen rugs	62.00	
Dec. 2	do	do	62.00	
				362.00
1891.				
Nov. 6	W. B. Moses & Sons	45½ yards Wilton carpet, at $1.85	84.18	
6	do	46½ yards Wilton border, at $1.65	76.73	160.91
		Referred to First Auditor for settlement		4,286.10
		Expended		6,494.04
		Outstanding accounts		2.40
		Unexpended		3.56
		Appropriation	6,500.00	
			6,500.00	6,500.00

FURNITURE, ETC.

For purchase of boxes, book rests, chairs, chair-caning, chair covers, desks, bookcases, clocks, cloth for covering desks, cushions, leather for covering chairs and sofas, locks, lumber, screens, tables, typewriters, ventilators, wardrobe cabinets, washstands, water coolers and stands, ten thousand dollars.—Legislative act, March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
July 30	I. P. Libbey	1 dozen clocks, as per contract		$155.40
Aug. 14	J. J. Decker	1 dictionary stand		3.50
14	The Ketcham Furniture Co.	1 standing desk		21.00
14	F. P. May & Co	2 boxes leather-head nails		4.00
Sept. 26	J. U. Burket & Co	1 hard-rubber desk plate, 10 buttons and engraved.		9.75
28	J. Blatzheim	Changing wire screen in issue division.		26.00
Oct. 1	Office Specialty Manufacturing Co.	1 mahogany bookcase		75.00
3	C. Becker	1 cover for chest		4.50
21	L. W. Burket	Repairing one writing machine		5.00
29	P. Woll & Sons	25 pounds S. E. Grey Drgs		10.00
Nov. 9	John F. McClain	Reupholstering lounge		18.00
18	B. J. Laws	Framing 1 picture		3.95
Dec. 2	The Ketcham Furniture Co.	2 single and 2 double cherry desks		266.00
2	Jas. M. Hodges	Gilding sign for Marine Hospital		7.00
21	Henry A. Clarke & Son	Repairs to typewriter		4.00
1892.				
Mar. 22	L. W. Burket	1 pad for Yost typewriter		2.00
Apr. 4	Seth Thomas Clock Co	1 No. 2 regulator		11.50
June 4	John Lucas & Co	Sundry paints and varnish		6.40
11	L. H. Schneider's Son	6 dozen elbow catches		5.28
25	Peter Woll & Sons	25 S. E. Grey Drgs		10.00
July 12	Royce & Marean	Maintenance of 3 observatory department clocks.		15.00
June 9	Ester De Puy	1 front rod wheel	$0.65	
July 22	do	1 Yost typewriter, complete	85.00	
				85.65
1891.				
Sept. 1	E. J. Brooks & Co	2 pieces of cloth, indigo blue, 100¾ yards.		188.91
Nov. 23	do	1 piece of blue cloth, 53¼ yards		99.84

Contingent expenses, Treasury Department, 1892—Continued.

FURNITURE, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Aug. 14	Heywood Bros. & Co	1 rotary chair	$8.09	
Sept. 26	do	1 Senate chair	12.75	
				$20.84
Aug. 13	Frank Freeman	1 linen table cover and 1 small top stand.	12.50	
21	do	Cleaning and repairing 6 lambrequins.	9.00	
				21.50
14	Charles Becker	10 gallons raw linseed oil	5.70	
Oct. 23	do	1 gallon Damar varnish	1.30	
Nov. 7	do	1 box double-thick glass, first quality.	3.62	
				10.62
1892.				
Feb. 24	E. E. Jackson & Co	144 walnut rollers	21.60	
24	do	Turning 1 oak table leg	.75	
				22.35
1891.				
Sept. 19	Thos. Somerville & Sons	Making and putting up iron fence	155.50	
Oct. 15	do	Making and putting up wire door	26.10	
				181.60
Aug. 14	John T. Donn & Son	Upholstering 2 sofas and 4 chairs	39.50	
14	do	Reupholstering sofa	23.50	
14	do	do	14.00	
Dec. 2	do	Repairing 4 armchairs	8.50	
				85.50
Oct. 21	Jackson & Sharp Co	3 walnut tables	36.00	
1892				
Jan. 4	do	4 bookcases	100.00	
May 28	do	1 W. P. case	55.00	
				191.00
1891				
Aug. 14	Otto Duker & Co	4 table desks, No. 4, cherry	76.00	
Nov. 9	do	1 standing desk with top, cherry	75.00	
Dec. 10	do	1 cabinet desk, No. 1, cherry	44.00	
1892				
Apr. 23	do	do	42.00	
				237.00
1891				
Sept. 7	J. H. Chesley & Co	Sundry articles of hardware	18.00	
Oct. 3	do	do	5.79	
Nov. 7	do	½ dozen stepladders	9.78	
Dec. 10	do	12 dozen coat and hat hooks	1.80	
1892				
Apr. 4	do	1 8-foot walnut stepladder	2.87	
June 9	do	8 gross screw eyes	1.96	
July 12	do	1 ladder	2.87	
				43.07
1891				
Sept. 10	Capelle Hardware Co	Sundry articles of hardware	47.93	
Nov. 6	do	do	60.60	
6	do	Flat head iron screws	10.75	
1892				
Jan. 23	do	Sundry articles of hardware	10.30	
Aug. 5	do	do	13.15	
				142.73
1891				
Oct. 3	Francis Miller	4 gallons alcohol	9.20	
Dec. 2	do	1 gallon alcohol	2.30	
21	do	2 gallons alcohol	4.60	
1892				
Jan. 14	do	do	4.60	
Mar. 11	do	do	4.60	
Apr. 29	do	do	4.60	
June 25	do	1 gallon alcohol	2.30	
				32.20
1891				
Sept. 10	Hugh Riley	Hard oil, shellac, and turpentine	25.95	
Dec. 17	do	Orange shellac and turpentine	16.70	
1892				
Mar. 2	do	Shellac, varnish, and hard oil	5.00	
22	do	Hard oil finish, light	2.10	
30	do	1 gallon turpentine	.44	
Apr. 22	do	5 gallons turpentine and 3 gallons varnish shellac.	10.90	
June 9	do	5 gallons hard oil finish	5.40	
				66.49
1891				
Aug. 14	Julius Lansburgh	1 lounge	40.00	
14	do	8 large box chairs	40.00	
21	do	1 stand for letter press	3.00	
Sept. 7	do	1 mahogany table, 2 arch chairs, and 1 wardrobe.	131.50	

Contingent expenses, Treasury Department, 1892—Continued.

FURNITURE, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Nov. 6	Julius Lansburgh	5 tables and 12 mirrors	$111.50	
Dec. 17	------do	1 chair spring	1.50	
1892				
Feb. 24	------do	120 feet red leather, 134 yards netting and 2 cases needles.	29.66	
Apr. 23	------do	1 dozen chair springs	7.20	
				$364 36
1891.				
Aug. 14	Geo. Ryneal, jr	1 quart Le Page's glue	.55	
Sept. 16	------do	1 gallon Le Page's glue	2.08	
Oct. 9	------do	5 lights of glass and 1 gallon cherry wood filler.	5.50	
Nov. 7	------do	2 lights of glass and 1 gallon glue	7.20	
9	------do	50 pounds cabinetmakers' glue	11.00	
Dec. 10	------do	¾ dozen varnish brushes	5.18	
10	------do	2 lights of glass, French double	5.00	
1892.				
Jan. 4	------do	2 gallons Valentine glue, 1 light of glass.	8.60	
4	------do	30 pounds wood filler	4.35	
Feb. 8	------do	8 lights of glass	3.36	
Mar. 4	------do	25 pounds cabinetmakers' glue	5.50	
4	------do	1 light of glass, 1 looking-glass plate, and 8 pieces of colored glass.	2.07	
Apr. 14	------do	2 gallons Valentine varnish	8.00	
May 5	------do	2 gallons orange shellac	5.10	
June 4	------do	1 light of glass	1.00	
4	------do	2 gallons glue and 3 gallons orange shellac.	9.85	
				84.34
1891.				
Aug. 14	James B. Lambie	4 wood drawer pulls	.20	
Sept. 7	------do	11 pounds zinc	1.65	
Oct. 9	------do	6 walnut water cooler stands	11.22	
9	------do	Sundry articles of furniture and hardware.	34.28	
Nov. 7	------do	Sundry articles of hardware	6.65	
Dec. 10	------do	------do	5.01	
1892.				
Jan. 16	------do	------do	2.80	
Mar. 17	------do	1 pair brass handles	.35	
Apr. 14	------do	4½ pair cast brass butts	2.03	
May 3	------do	Sundry articles of hardware	2.42	
3	------do	3 dozen walnut chair seats	5.00	
June 9	------do	3 sets castors	1.23	
9	------do	Sundry articles of hardware	24.08	
				96.92
1891.				
Aug. 3	W. H. Cooper	Framing Denver Mint building photograph.	3.00	
Sept. 16	------do	1 frame to order	1.50	
26	------do	1 selected picture frame	1.25	
Oct. 3	------do	1 frame to order	5.50	
Dec. 2	------do	1 oak frame	3.00	
2	------do	1 oak frame with mat	.75	
21	------do	1 picture frame to order	3.50	
1892.				
Feb. 24	------do	1 picture frame (oak) to order with mat.	3.50	
May 19	------do	1 enamel 3-inch frame for World's Fair picture.	7.50	
19	------do	1 oak frame for picture of Dr. J. B. Hamilton.	4.50	
				34.00
1891.				
Aug. 14	Libby, Bittinger & Miller	4,500 feet 4-4 white pine shelving	156.50	
14	------do	400 feet ash and oak plank	23.00	
21	------do	500 feet ⅞ poplar lumber	18.75	
21	------do	4,500 feet cypress and white pine lumber.	186.40	
21	------do	5,000 feet poplar lumber	142.50	
21	------do	1,700 feet walnut and ash lumber	249.80	
21	------do	2,700 feet Mexican mahogany	605.50	
Sept. 10	------do	1,035 feet of 6-4 shelving	45.54	
Oct. 9	------do	5,000 feet white pine uppers	201.10	
Dec. 2	------do	10 pieces lumber	4.48	
1892.				
Feb. 24	------do	500 feet white pine uppers	29.50	
Mar. 22	------do	200 feet white pine uppers	5.72	
Apr. 4	------do	100 feet ½ uppers dressed	3.15	

Contingent expenses, Treasury Department, 1892—Continued.

FURNITURE, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
Apr. 16	Libby, Bittinger & Miller	750 feet shelving	$31.50	
19	------do	750 feet white pine and Mexican mahogany.	70.75	
23	------do	1,000 feet 4-4 No. 1 shelving	39.75	
May 28	------do	2,900 feet white pine shelving and white pine uppers, dressed.	115.35	
June 9	------do	500 feet white pine uppers	29.50	
11	------do	200 feet Mexican mahogany	47.00	
29	------do	200 feet white pine	5.72	
July 14	------do	300 feet pine shelving	11.25	
				$2,022.76
1891.				
Aug. 21	Minneapolis Office and School Furnishing Co.	1 table, No. 9, cherry, and 1 double desk, No. 2.	66.00	
26	------do	2 table desks, No. 11	53.00	
Sept. 16	------do	1 cabinet desk, No. 2	51.00	
19	------do	2 cherry bookcases, No. 37	120.00	
Oct. 1	------do	1 cabinet desk, No. 1, cherry	38.00	
1	------do	------do	38.00	
16	------do	2 cabinet desks, No. 1, and 1 desk, No. 11, cherry.	102.50	
16	------do	4 cabinet desks, No. 1, and 1 desk, No. 3, cherry.	215.00	
1892.				
Mar. 14	------do	4 cabinet desks, No. 1	142.88	
14	------do	12 half cabinet desks, No. 11	298.92	
				1,125.30
1891.				
Aug. 14	Wyckoff, Seamans & Benedict.	Two 8-drawer cabinets, and repairing typewriters.	80.56	
14	------do	3 typewriters and repairs	200.00	
25	------do	4 typewriters (two No. 2, and two 8-drawer).	220.00	
Sept. 10	------do	Repairing and remodeling 6 typewriters.	70.80	
Oct. 15	------do	Repairing and remodeling 12 typewriters.	57.30	
15	------do	Repairing and remodeling 13 typewriters.	63.95	
15	------do	Repairing and adjusting 4 typewriters.	8.16	
Nov. 7	------do	1 No. 2 typewriter and sundry repairs.	94.37	
9	------do	Sundry repairs to typewriters	11.30	
Dec. 10	------do	------do	11.49	
1892.				
Jan. 8	------do	Repairs to typewriters	39.65	
Feb. 15	------do	------do	26.90	
Mar. 25	------do	------do	36.46	
Apr. 4	------do	------do	66.72	
May 5	------do	------do	44.78	
June 9	------do	------do	10.16	
July 12	------do	------do	5.76	
12	------do	------do	26.67	
				1,075.03
1891.				
Aug. 14	John C. Parker	2 type wheels	10.00	
14	------do	1 type wheel	5.00	
Sept. 1	------do	1 Hammond typewriter	85.00	
10	------do	1 pair ribbon spools	1.00	
Oct. 15	------do	Repairs to Hammond typewriter	3.00	
23	------do	Remodeling Hammond typewriter	45.00	
23	------do	Repairing Hammond typewriter	.50	
Nov. 6	------do	4 ribbon shields	.40	
6	------do	4 ribbon shields and 1 type wheel	5.60	
9	------do	Repairing 1 Hammond typewriter	1.25	
1892.				
Feb. 24	------do	Repairing 2 Hammond typewriters	1.00	
Apr. 16	------do	Repairing 1 Hammond typewriter	.50	
16	------do	6 ribbon shields	.60	
26	------do	1 type wheel	5.00	
May 19	------do	Repairing 1 Hammond typewriter	3.00	
19	------do	Repairing 2 type wheels	2.00	
28	------do	Remodeling Hammond typewriter	22.00	
June 4	------do	1 type wheel	5.00	
				195.85
1891.				
Aug. 14	W. H. Houghton Manufacturing Co.	6 oak office chairs	15.00	

Contingent expenses, Treasury Department, 192—Continued.

FURNITURE, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Aug. 14	W. H. Houghton Manufacturing Co.	1 flat-top oak stand	$4.50	
14	------do	12 walnut bentwood chairs and repairing.	20.70	
Oct. 1	------do	Sundry repairs done and materials furnished.	58.64	
1892.				
Feb. 15	------do	1 hide of leather	9.61	
Mar. 25	------do	1 oak stand	4.50	
25	------do	1 mahogany revolving chair, 1 mahogany armchair, and 2 mahogany side chairs.	90.50	
25	------do	Recaning back of chair	1.10	
25	------do	12 yards green and 24 yards black enamel cloth.	10.80	
25	------do	Recaning chair seat	1.50	
25	------do	Recaning chair seat and back	2.20	
25	------do	Recaning chair	1.10	
25	------do	Recaning back of chair	1.10	
25	------do	Recaning 1 chair	1.10	
25	------do	1 small folding table	1.25	
25	------do	12 yards enamel cloth	3.60	
25	------do	Recaning seat and back of chair	2.20	
25	------do	Recaning 2 chairs	2.20	
30	------do	60 feet leather	9.30	
July 23	------do	24 yards green and black cloth	7.20	
23	------do	1 side of red leather	9.30	
23	------do	Recaning chair seat	1.10	
23	------do	1 rod for portiere, complete	1.75	
23	------do	22 seat frames, woven cane	20.26	
23	------do	Recaning chair seat	1.10	
23	------do	1 chair-seat frame and recaning bottom.	2.73	
23	------do	1 dozen chair-seat frames, woven cane.	12.13	
23	------do	Recovering 3 chairs	3.30	
29	------do	72 yards red leather gimp	1.98	
				$301.75
1891.				
Aug. 14	Newman & Son	Repairs to caligraph	5.00	
14	------do	Repairs to 2 caligraphs	5.00	
14	------do	1 copyholder	2.00	
14	------do	Repairs to caligraph	1.00	
14	------do	2 typewriters (caligraph and 8-drawer).	122.50	
25	------do	1 No. 2 caligraph with stand	85.00	
26	------do	Repairs to caligraph	4.00	
Sept. 1	------do	Spring to typewriter desk	2.00	
26	------do	Repairs to caligraph	1.50	
Oct. 1	------do	Repairs to 2 caligraphs	9.50	
15	------do	Repairs to 1 caligraph	1.00	
Nov. 9	------do	------do	1.50	
Dec. 10	------do	------do	.50	
10	------do	------do	7.00	
17	------do	------do	6.00	
1892.				
Feb. 8	------do	------do	3.00	
15	------do	------do	2.60	
15	------do	Repairs to 2 caligraphs	6.50	
15	------do	Repairs to 1 caligraph	3.50	
Mar. 17	------do	1 dozen ribbon supporters	1.00	
Apr. 16	------do	Repairs to 1 caligraph	.50	
May 12	------do	Repairs to 2 caligraphs	4.50	
28	------do	Repairs to 1 caligraph	3.50	
June 9	------do	1 roll-top drop cabinet	50.00	
29	------do	Repairs to 1 caligraph	3.00	
				331.60
1891.				
Aug. 14	W. B. Moses & Sons	1 walnut Senate chair	11.50	
14	------do	1 antique desk, 1 wardrobe, 1 washstand, 1 umbrella stand.	105.25	
14	------do	2 dozen continental chairs	108.48	
.4	------do	3 dozen walnut stools	115.92	
14	------do	338 yards cloth, 2 dozen Victoria and 1 dozen Congressional chairs.	266.32	
14	------do	1 Senate chair	11.60	
14	------do	1 antique revolving rack	27.00	
14	------do	12 walnut coolers	63.30	
14	------do	1 5-foot leather sofa to order	55.00	

Contingent expenses, Treasury Department, 1892—Continued.

FURNITURE, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Aug. 14	W. B. Moses & Sons	1 10-gallon water cooler	$10.25	
21	do	1 dictionary stand	9.00	
21	do	1 antique oak standing desk	20.00	
25	do	1 dozen continental chairs	54.24	
Sept. 1	do	12 Victoria chairs	54.24	
7	do	3 cherry tables	27.00	
10	do	1 dozen walnut revolving stools	38.64	
22	do	1 dozen walnut water coolers	63.30	
Oct. 1	do	5 cherry chairs	40.00	
15	do	6 coil springs	2.40	
15	do	6 walnut water coolers	28.80	
Nov. 6	do	6 Victoria chairs	27.12	
6	do	6 walnut continental chairs	27.12	
7	do	6 walnut continental chairs and adjustable head couch.	92.10	
Dec. 24	do	6 Victoria chairs	27.12	
1892.				
Feb. 24	do	1 antique oak Congressional chair	7.85	
Mar. 2	do	1 dark high screw stool	2.35	
25	do	25 yards green cloth	27.50	
Apr. 22	do	40 yards burlaps	2.50	
29	do	1 walnut Congressional chair	7.85	
June 25	do	6 screw stools	19.32	
July 2	do	1 walnut water cooler	4.80	
12	do	do	4.80	
12	do	1 Congressional chair	7.85	
				$1,370.52
1891.				
July 15	W. S. Tappan	Services winding and repairing clocks fifteen days in July, 1891.	40.00	
22	do	1 French marble-case clock and bronze figure.	23.50	
29	do	Services winding and regulating clocks fifteen days in July, 1891.	40.00	
Aug. 14	do	Bundle of cord for repairing clock.	2.00	
14	do	Winding and repairing clocks, first half of August, 1891.	40.00	
21	do	2 mantel clocks	32.00	
29	do	Winding and regulating clocks last half of August, 1891.	40.00	
Sept. 14	do	Winding and regulating clocks first half of September, 1891.	40.00	
20	do	Winding and regulating clocks second half September, 1891.	40.00	
Oct. 15	do	Winding and regulating clocks first half October, 1891.	40.00	
27	do	Winding and regulating clocks second half October, 1891.	40.00	
Nov. 18	do	Winding and regulating clocks first half November, 1891.	40.00	
23	do	Winding and regulating clocks second half November, 1891.	40.00	
Dec. 12	do	Winding and regulating clocks first half December, 1891.	40.00	
28	do	Winding and regulating clocks second half December, 1891.	40.00	
1892.				
Jan. 14	do	Winding and regulating clocks first half January, 1892.	40.00	
29	do	Winding and regulating clocks second half January, 1892.	40.00	
Feb. 13	do	Winding and regulating clocks first half February, 1892.	40.00	
27	do	Winding and regulating clocks second half February, 1892.	40.00	
Mar. 15	do	Winding and regulating clocks first half March, 1892.	40.00	
30	do	One gong for clock	.35	
30	do	Winding and regulating clocks second half March, 1892.	40.00	
Apr. 14	do	Winding and regulating clocks first half April, 1892.	40.00	
29	do	Winding and regulating clocks second half April, 1892.	40.00	
May 13	do	Winding and regulating clocks first half May, 1892.	40.00	
23	do	One coil clock cord	.40	
27	do	Winding and regulating clocks second half May, 1892.	40.00	

Contingent expenses, Treasury Department, 1892—Continued.

FURNITURE, ETC.—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
June 14	W. S. Tappan	Winding and regulating clocks first half June, 1892.	$40.00	
29	do	Winding and regulating clocks second half June, 1892.	40.00	
				$1,018.25
		Referred to First Auditor for settlement.		62.50
		Expended		10,175.76
		Outstanding accounts		61.05
		Unexpended		8.82
		Appropriation	10,000.00	
		Repayments	245.63	
			10,245.63	10,245.63

MISCELLANEOUS ITEMS.

For washing and hemming towels, for the purchase of awnings and fixtures, window shades and fixtures, alcohol, benzine, turpentine, varnish, baskets, belting, bellows, bowls, brooms, buckets, brushes, canvas, crash, cloth, chamois skins, cotton waste, door and window fasteners, dusters, flower-garden, street, and engine hose, lace leather, lye, nails, oil, plants, picks, pitchers, powders, stencil plates, hand stamps and repairs of same, stamp ink, spittoons, soap, matches, match safes, sponge, tacks, traps, thermometers, tools, towels, towel racks, tumblers, wire, zinc, and for blacksmithing, repairs of machinery, removal of rubbish, sharpening tools, advertising for proposals, and for sales at public auction in Washington, D. C., of condemned property belonging to the Treasury Department, payment of auctioneer fees, and purchase of other absolutely necessary articles, $10,000.—Legislative act March 3, 1891.

Date.	Name.	Item.	Amount.	Total.
1891.				
July 27	National View	Advertising proposals for binding material.		$2.10
Aug. 14	Henry Maule	1 package sweet-pea seed		.60
14	Republic	Advertising		1.68
14	F. P. May & Co	1 vise		4.50
14	J. S. Tomlinson	Amount paid duty on books		.40
25	Barber & Ross	Gimlet and stone drill		2.50
25	The E. S. Greely Co	12 dry batteries		11.64
Sept. 1	Ledig & Way	2 dozen sets castings	$21.50	
	do	1 dozen rods	9.00	
				30.50
7	New York Press	Advertising for binding material		5.20
10	W. R. Herbert	12 disinfecting machines		81.00
	The Press, Philadelphia	Advertising for binding material		2.80
19	Fairbanks & Co	1 pair scales		22.80
	H. W. Higham	Repairing 33 drills, at 10 cents		3.30
22	Chas. C. Fulton & Co., Baltimore American.	Advertising proposals for binders' material.		1.63
Oct. 10	Evening Star, Washington, D. C.	do		1.95
10	do	Advertising proposals for sale of old furniture.		3.00
10	Automatic Bank Punch Co.	Repairing, etc., 2 automatic bank-punch.		9.60
10	Frank Freeman	Covering one awning frame		4.00
15	Bartley Thornton	10 loads of sand and 15 bushels of coal.		15.00
Nov. 9	National View	Advertising proposals for roof of Winder building.		2.70
9	J. Q. Thompson & Co	do		4.20
19	Maurice Joyce	Engraving 2 autograph plates		2.00
19	J. W. Hine	1 Chase copyholder		3.50
Dec. 2	C. B. Fenton & Co	For recasting 6 rollers, at 50 cents each.		3.00
10	Bureau of Engraving and Printing.	1 numbering machine		20.00
17	The Sunday Gazette	Advertising proposals for tin roof of Winder building.		3.50
1892.				
Jan. 4	Theodore F. Cook	2 barrels of savogran		28.60
4	Robacher's Disinfectant Co.	100 barrels Robacher's peerless disinfectant.		31.00
8	W. A. Pate	124 feet 1 inch of bored iron		8.50
23	John H. Magruder	2 sacks of salt; 5 gross boxes of matches.		5.35

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
Jan. 25	M. W. Hennins	1 Champion type-cleaner		$2.00
29	Edw. S. Schmid	1 bale, 300 pounds, of tobacco stems, at $1.50 per 100 pounds.		4.50
29	The Deis Manufacturing Co.	3 mail pulleys		7.50
Feb. 1	James S. Topham	1 mail bag repaired		3.00
4	S. N. Tucker	Putting in new pads in 3 stamps		.50
8	E. F. Brooks	25 feet of rubber tubing		1.25
8	L. Power & Co	2 molding cutters		2.50
8	F. C. Snyder	Repairs to 7 fire tools		8.75
Mar. 12	Samuel Liebscheits	2 pads for numbering machine		.30
12	W. D. Doremus	Renickeling 1 set faucet and handles.		.75
12	Bates Manufacturing Co	1 automatic numbering machine		14.00
17	Mrs. M. E. Kerper	Repairing 25 window curtains		1.50
Apr. 4	C. B. Rogers	4 cutters at $1.50 and 4 spurs at 50 cents		8.00
14	Hutchinson Brothers	2 galvanized iron pans		1.50
14	Evening Star	Advertising proposals for sale of old articles.		6.30
14	Rowley & Hermanee	Chisels and Rogers' taber		6.00
16	J. H. Kuchling	1 speaking tube and placing in position.		7.00
16	Geo. L. Norris	3 circular saws, 10-inch; 1 16-inch		3.60
25	Anna E. Treadwell	2 dozen boxes Electric roach exterminator.		6.00
25	Bureau of Engraving and Printing.	Engraving 1 seal stamp to cut word counterfeit.		35.00
30	Frank Hosmer	2 trained ferrets, male, at $10		20.00
May 4	Neracher Sprinkler Co	Automatic sprinkler and 5 alarms, Treasury building.		1,000.00
28	Bureau of Engraving and Printing.	Sharpening 2 knives, No. 28, for paper-cutting machine.		1.50
28	Anna C. Rattigan	Hemming and overstitching 25½ dozen towels.		19.44
June 11	Henry Disston & Sons	1 7⅛-inch, 1 7¼-inch, 1 7⅜-inch, 1 7½-inch grooves.		9.68
11	Bureau of Engraving and Printing.	Repairing 1 knife for Internal Revenue Department, First Auditor.		1.00
13	Rufus H. Darby, Republic	Advertising proposals for sale of old furniture, etc.		2.64
15	Louden Feast	1 lot of miscellaneous plants for Treasury Department.		95.00
17	Mrs. Fred Rice	For looping and stitching towels		3.00
22	Mrs. Mary E. Morrow	------do		7.50
22	Mrs. Mary Dunn	------do		3.00
25	National Republican	Advertising proposals for removing ashes, etc.		10.11
25	National View	Advertising proposals for washing towels, etc.		6.00
25	Revenue Marine Division	3 United States flags (referred to First Auditor).		27.55
29	Bartley Thornton	Furnishing manure		20.00
July 9	Mrs. Wm. Mitchell	Hemming, etc., towels		3.75
9	Maria H. Chapman	------do		3.75
9	Mary Ellen Dunn	------do		3.75
9	Jane A. Pettys	------do		5.25
9	Mary Morrow	------do		3.75
18	A. A. Simmonds	Cutter		24.40
23	Annie Collins	Hemming and stitching towels		3.75
23	Macnichol & Son	Painting and lettering signs		24.40
Aug. 5	Evening Star	Advertising proposals for tin roof		7.01
10	------do	Advertising proposals for supplies		10.75
26	National Democrat	Advertising proposals for sale of old articles.		3.20
26	Evening Star	Advertising proposals		1.58
26	------do	------do		3.00
Mar. 22	C. Schneider	3 whistles	$0.60	
July 29	------do	6 pads, etc	3.00	
				3.60
1891.				
Aug. 14	D. B. Mackall	7 window shades	45.50	
14	------do	5 window shades	32.50	
				78.00
Sept. 26	The National Republican	Advertising sale, etc	4.28	
Nov. 9	------do	------do	5.80	
				10.08
Dec. 29	S. F. Ware	2 dozen soap	7.20	
1892.				
June 4	------do	3 dozen soap	10.80	

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
June 29	S. F. Ware	½ dozen rat and roach exterminator.	$0.50	
				$18.50
1891.				
Dec. 10	Wilmarth & Edmunston	2 dozen water buckets	20.00	
1892.				
Mar. 12	do	Water buckets, etc	10.10	
July 12	do	Brushes, etc	15.00	
				45.10
1891.				
Dec. 12	A. P. Ward	Typewriter brush	2.00	
18	do	Bar, wire holders, etc	9.00	
				11.00
1892.				
Mar. 15	J. F. Simpson	Copying bath	3.50	
May 15	do	Copying bath, etc	5.00	
27	do	Copying bath	3.50	
				12.00
Aug. 14	H. Hoffer	Clock oil	7.35	
1891.				
Oct. 10	do	do	7.35	
1892.				
Jan. 10	do	do	4.41	
23	do	do	7.35	
				26.46
1891.				
Sept. 7	C. Becker	5 gallons benzine	.55	
Oct. 21	do	Mail bag	8.50	
Dec. 21	do	10 gallons benzine	1.10	
1892.				
Feb. 24	do	4 gallons benzine	.44	
				10.59
1891.				
Aug. 14	H. D. Wade & Co	Numbering red	4.50	
Dec. 21	do	do	4.50	
				9.00
Sept. 10	L. Schade	Advertising proposals	2.00	
Oct. 23	do	Advertising property (sale of)	4.00	
				6.00
15	J. H. Miller & Co	Black ink	4.00	
1892.				
Mar. 2	do	do	4.00	
May 14	do	Gauge pins, etc	3.20	
				11.20
1891.				
Aug. 14	T. J. Somerville & Sons	Repairing machine	22.00	
14	do	Rest for lathe	1.50	
14	do	Repairs to rod	1.25	
Oct. 10	do	Making steel bolts	14.80	
10	do	Making screws	.38	
10	do	Steel key	3.55	
Dec. 2	do	Repairs to machine	3.00	
2	do	1 spring	.50	
1892.				
Jan. 16	do	Sharpening knives	5.00	
				51.98
Mar. 4	do	Bolt, etc	.75	
Apr. 4	do	Recasting leads	8.00	
4	do	do	3.00	
4	do	Sharpening knives	5.00	
July 12	do	Making clamps, etc	4.20	
Aug. 10	do	Box for hanger, etc	7.00	
				27.95
1891.				
Sept. 16	Geo. Ryneal, jr	Oils and glycerine		7.07
Oct. 3	do	Cotton waste		25.80
Nov. 7	do	Brushes, etc		5.36
Dec. 17	do	do		6.25
1892.				
Feb. 8	do	Glycerine, etc		32.15
Mar. 4	do	Glue		1.10
Apr. 14	do	Marking brushes		3.20
14	do	Wax tapers		5.00
May 5	do	Oilers, etc		4.76
July 14	do	Glass, etc		3.46
14	do	Repairs to carriage lamp		.50
1891.				
Aug. 14	J. McDermott & Bro	Repairing wagon		2.00
14	do	Repairing truck		3.50

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Aug. 25	J. McDermott & Bro	Wheel truck		$45.00
Sept. 4	do	do		45.00
16	do	One truck		48.00
Oct. 8	do	Repairs, etc		7.50
Nov. 23	do	do		18.00
Dec. 2	do	Rubber tires		11.00
Aug. 14	Lansburg & Bros	Jeans and toweling		20.00
14	do	2 awnings		7.36
14	do	1 awning		3.68
14	do	6 dozen combs		8.52
Sept. 1	do	2 awnings		7.36
16	do	Window shades		66.00
Oct. 21	do	Jeans, etc		11.20
23	do	Glass, toweling		5.75
23	do	Nail brushes		6.51
Dec. 10	do	Soap, etc		52.75
1892.				
Jan. 25	do	Combs		2.84
Feb. 15	do	Window shades		16.50
24	do	do		3.26
Mar. 12	do	Combs		2.84
12	do	Jeans		4.25
Apr. 4	do	Nail brushes		4.34
16	do	100 yards white jeans		8.50
26	do	Awning covering, etc		65.66
May 11	do	⅛ dozen combs		.71
28	do	Awnings, etc		7.36
June 4	do	Jeans, toweling, etc		85.50
25	do	Window shades		15.84
Aug. 5	do	Awning		3.68
1891.				
Oct. 21	Forsberg & Murray	Repairs		16.00
1892.				
Mar. 11	do	1 flange		16.00
12	do	3 bolts		1.75
Apr. 4	do	Pulley		9.00
4	do	Screws		3.80
23	do	Babbitting bearings, etc		21.60
June 25	do	Screws		1.60
Aug. 5	do	Repairs		2.00
1891.				
Aug. 14	Royce & Marean	50 pounds annunciated wire No. 18	$12.50	
14	do	Push-buttons and attaching plugs	4.10	
Oct. 15	do	Zincs for batteries	2.00	
21	do	10 pounds sal ammoniac, at 20 cents.	2.00	
23	do	Electric bells and binding posts	5.75	
Dec. 2	do	3 pendant push buttons	2.25	
1892.				
Feb. 17	do	1 dozen desk push buttons	2.00	
24	do	1 roll Kerite tape	.95	
Mar. 17	do	Batteries and electric bells	7.25	
Apr. 29	do	2 dozen Leclanch battery zinc, at 50 cents.	1.00	
June 25	do	6 nickel push buttons, at 40 cents	2.40	
				42.20
1891.				
Aug. 14	E. J. Brooks & Co	24 dozen cotton mops, at 99.9 cents	23.97	
Sept. 1	do	Hinges, casters, files and handles	49.33	
Oct. 29	do	12 dozen cotton mops, at 99.9 cents	11.99	
Dec. 2	do	25 feet hose, rubber, ¾ inches, 3-ply, at 10 cents.	2.50	
1892.				
Feb. 24	do	25 dozen cotton mops, 9 pounds, at 99.9 cents.	24.98	
Mar. 17	do	23 dozen cotton mops, 9 pounds, at 99.9 cents.	22.98	
				135.75
1891.				
Sept. 19	J. H. Eubank	New mail bag and repairing one	11.00	
Nov. 9	do	Repair long strap	50	
1892.				
Jan. 8	do	Repair mail bag	1.00	
Feb. 5	do	do	2.50	
Apr. 4	do	1 new mail bag and repairing one	5.50	
May 5	do	Buckle on strap	50	
June 4	do	Repair mail bag	2.00	
				23.00
1891.				
Aug. 14	W. S. Thompson	Ginger, peppermint, and mustard	3.25	

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Sept. 19	W. S. Thompson	3 dozen Putz pomade	$3.25	
Dec. 2	do	½ gallon bottle of ammonia	.45	
1892.				
Mar. 30	do	3 dozen Putz pomade	3.25	
				$10.20
1891.				
Aug. 14	Strawbridge & Clothier	100 yards crash, at 5¼ cents	5.25	
Nov. 7	do	do	5.25	
Dec. 10	do	250 yards crash, at 5¼ cents	13.13	
1892.				
June 25	do	100 yards crash, at 5¼ cents	5.25	
				28.88
July 23	W. H. Houghton Manufacturing Co.	1 portiere pole, 7 feet	1.75	
23	do	30 yards heavy linen, at 42½ cents	12.75	
				14.50
1891.				
Sept. 10	E. G. Schafer & Co	10 pounds gum packing, at 20 cents	2.00	
1892.				
Mar. 12	do	2 globe valves, ⅜ inches	.80	
June 25	do	3 center wheels, at 20 cents	.60	
				3.40
1891.				
Sept. 1	Francis Miller	5 gallons alcohol, at $2.30	11.50	
1892.				
Feb. 1	do	1 gallon alcohol	2.30	
May 3	do	1 dozen lamp chimneys	.75	
				14.55
1891.				
Aug. 21	Thomas Binnix	1 Copper marking pot	1.25	
Sept. 19	do	do	1,25	
Oct. 1	do	New bottom on tin bucket	.30	
Dec. 10	do	do	.30	
23	do	do	.30	
1892.				
Mar. 2	do	do	.30	
Apr. 14	do	do	.30	
				4.00
1891.				
Aug. 14	J. J. Decker	1 dictionary stand	3.50	
Oct. 3	do	do	3.50	
10	do	6 dictionary stands, at $3.25	19.50	
1892.				
Apr. 4	do	1 dictionary stand	3.50	
4	do	do	3.50	
May 28	do	do	3.50	
				37.00
1891				
Oct. 23	L. H. Schneider's Sons	Shutter knobs and files	5.07	
1892.				
Jan. 26	do	1 dozen screw-drivers	1.54	
Feb. 8	do	8 dozen hand screws	23.80	
				30.41
1891.				
Aug. 14	Hugh Reilly	5 gallons kerosene oil	.60	
Oct. 21	do	do	.60	
1892.				
Jan. 8	do	Lantern, oil cans, and kerosene oil	1.86	
Mar. 30	do	Oil can and kerosene oil	1.10	
				4.16
1891.				
Aug. 14	W. B. Moses & Sons	200 yards Silver Lake cord	4.00	
Nov. 7	do	do	4.00	
1892.				
Apr. 14	do	25 dozen huck towels, at $3.65	91.25	
June 11	do	do	91.25	
July 12	do	30 dozen huck towels, at $3.65	109.50	
				300.00
1891.				
Aug. 14	Julius Lansburgh	4 dozen feather dusters, No. 22, at $18.45.	73.80	
21	do	6 dozen feather dusters, No. 22, at $18.45.	110.70	
Sept. 7	do	5 bales excelsior, at 75 cents	3.75	
16	do	1 gross spring rollers, Hartshorn	19.47	
Oct. 5	do	Slop jars, pitchers, bowls, and buckets.	42.01	
21	do	1 dozen slop jars	11.40	
Nov. 6	do	2 dozen ice buckets	18.10	

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Nov. 11	Julius Lansburgh	2 pairs curtains, complete	$109.00	
Dec. 17	do	1 dozen feather dusters	18.45	
17	do	2 dozen pitchers, at $4.70	9.40	
17	do	1 dozen galvanized iron buckets	9.90	
17	do	1 dozen desk covers	7.95	
1892.				
Jan. 16	do	3 dozen feather dusters, at $18.45	55.35	
16	do	1 dozen slop jars	11.40	
Feb. 8	do	2 dozen desk covers	13.23	
				$513.91
24	do	1 dozen slop jars	11.40	
Mar. 2	do	2 dozen feather dusters, at $18.45	36.90	
4	do	1 dozen soapine	4.88	
Apr. 22	do	Slop jars and large dusters	24.15	
May 19	do	1 dozen feather dusters	18.45	
June 9	do	1 dozen water pitchers	2.35	
July 12	do	3 dozen feather dusters, at $18.45	55.35	
				153.48
1891.				
Aug. 14	W. S. Tappan	Repairing ice pitcher	1.75	
14	do	do	1.00	
Sept. 30	do	do	1.75	
1892.				
Feb. 24	do	Repairing silver pitcher	.75	
Mar. 12	do	Repairing ice pitcher	.40	
Apr. 15	do	Repairing silver pitcher	2.50	
July 14	do	Relining ice pitcher	4.00	
				12.15
1891.				
Aug. 14	James B. Lambie	Hooks, rings, bolts, drill wrench, etc.	7.90	
14	do	4½ pounds sash cord, at 27½ cents	1.24	
14	do	Rings, cord, files, taps, and scales	21.18	
Sept. 7	do	Lantern and one brass corner piece.	6.75	
7	do	Chest lock, screw-driver, and hatchet.	2.95	
7	do	2 dozen oil stones, at $9.47	18.94	
7	do	Marking ink, hose, screws, locks, brads, wrench, etc.	17.89	
16	do	Rollers, files, etc	7.45	
Oct. 10	do	Wrench, knives, thread, hammer, and needles.	9.33	
10	do	Wrench, hammer, plyer, files, gauge, and tacks.	13.75	
10	do	Stone, frame, scales, files, ink, screws, handles, etc.	42.72	
Nov. 7	do	Sieve, cup, lacings, plane, grindstones, trap, etc.	20.22	
7	do	Angle iron and oil can	2.32	
7	do	Screws, scraper, saw, hatchet, scoop, and files.	14.66	
Dec. 2	do	Saws, hammers, handles, hatchets	8.20	
10	do	Bolts, lock, hatchet, shears, pliers, saw, etc.	21.19	
10	do	33 dozen blank keys	11.55	
1892.				
Jan. 8	do	Ice tongs, knives, stone, bolts, saw, files, chisel, etc.	9.55	
14	do	Screws, cord, gauge, and rule	7.72	
16	do	Wrench, screw-driver, oil, vise, cutter, wrench, etc.	31.50	
25	do	Chisel, tapeline, screw-driver, tags, and hammer.	8.25	
25	do	4 dozen key blanks	1.40	
Feb. 8	do	Key blanks and hand screws	3.35	
15	do	Letter balance, tripoli, shovels, lock, cord, and files.	15.50	
Mar. 17	do	Bitt, twine box, bolt, screws, hasps, and tools.	3.47	
30	do	15 pounds manilla rope, at 13 cents	1.95	
				310.93
Apr. 14	do	Bracket, plane, wrench, bolts, spades, etc.	11.72	
May 3	do	Needles, punch, emery wheel, hinges, powder, and screws.	8.59	
June 29	do	1 dozen key blanks	.35	
29	do	Rope, hooks, bracket, chain, staples, etc.	6.65	
July 12	do	Key blanks and oil stone	12.97	

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
July 14	James B. Lambie	Buttons, brackets, and toilet screws.	$2.75	
14	do	Bitt, iron, drill, lock, wrench, hose, bolts, etc.	32.10	
Aug. 5	do	100 pounds scale weights	.50	
				$75.63
1891.				
Aug. 14	Z. D. Gilman	Soap and camphor	45.65	
Sept. 19	do	½ dozen bellows	2.54	
Oct. 10	do	25 pounds sponge	47.40	
23	do	25 pounds camphor, at 50⅜ cents	12.59	
23	do	30 pounds soap, at 15¾ cents	4.73	
29	do	25 pounds soap, at 15¾ cents	3.94	
Nov. 11	do	25 pounds camphor, at 50⅜ cents	12.59	
Dec. 2	do	20 pounds sponge	38.20	
10	do	50 pounds soap, at 15¾ cents	7.88	
1892.				
Feb. 24	do	Sponge, soap, and camphor	28.17	
Mar. 12	do	Sponge and soap	21.55	
May 23	do	Sponge, soap, and camphor	9.77	
June 4	do	150 pounds castile soap, at 15¾ cents.	23.62	
9	do	Camphor and sponge	72.59	
				331.22
	James O'Day	Hauling as per contract, at $1.19½ per day:		
	do	July, 1891	25.10	
	do	August, 1891	31.07	
	do	September, 1891	31.07	
	do	October, 1891	32.27	
	do	November, 1891	29.88	
	do	November, 1891	8.50	
	do	December, 1891	40.77	
	do	January, 1892	39.57	
	do	February, 1892	38.38	
	do	March, 1892	40.77	
	do	April, 1892	39.58	
	do	May, 1892	39.57	
	do	June, 1892	.50	
	do	June, 1892	39.57	
				436.69
Mar. 22	F. A. Schneider	1 dozen spools copper wire, at 80 cents.	9.60	
June 4	do	6 dozen spools copper wire, at 70 cents.	4.20	
July 12	do	12 dozen spools copper wire, at 70 cents.	8.40	
				22.20
1891.				
Sept. 10	Capella Hardware Co	Hatchet handles and sash cord	12.05	
1892.				
Jan. 23	do	Sandpaper	4.20	
23	do	Ice hatchets	10.75	
				27.00
1891.				
Dec. 23	L. Power & Co	2 molding cutters	4.00	
1892.				
Jan. 25	do	2 molding cutters	2.50	
Apr. 16	do	5 pair knives	5.72	
				12.22
1891.				
Aug. 14	Herdic Phaeton Co	100 street-car tickets	3.90	
14	do	200 street-car tickets	7.80	
14	do	do	7.80	
Sept. 1	do	100 street-car tickets	3.90	
10	do	do	3.90	
22	do	do	3.90	
Nov. 18	do	250 street-car tickets	9.75	
Dec. 29	do	200 street-car tickets	7.80	
29	do	100 street-car tickets	3.90	
1892.				
Jan. 16	do	do	3.90	
25	do	do	3.90	
Feb. 24	do	do	3.90	
Mar. 12	do	50 street-car tickets	1.95	
22	do	100 street-car tickets	3.90	
Apr. 4	do	50 street-car tickets	1.95	
4	do	200 street-car tickets	7.80	
14	do	100 street-car tickets	3.90	
14	do	do	3.90	

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
May 14	Herdic Phaeton Co	100 street-car tickets	$3.90	
14	------do	------do	3.90	
June 9	------do	------do	3.90	
9	------do	------do	3.90	
25	------do	1000 street-car tickets	39.00	
				$142.35
1891.				
Aug. 22	J. Baumgarten & Son	Making and repairing rubber stamps.	8.30	
Sept. 7	------do	------do	5.06	
22	------do	------do	4.02	
22	------do	------do	21.83	
Oct. 10	------do	------do	3.40	
15	------do	------do	7.01	
Nov. 9	------do	------do	5.42	
9	------do	------do	13.96	
1892.				
Jan. 8	------do	------do	6.32	
8	------do	------do	1.17	
16	------do	------do	4.40	
Mar. 12	------do	------do	15.46	
12	------do	------do	3.00	
Apr. 19	------do	------do	8.50	
20	------do	------do	10.88	
May 11	------do	------do	8.32	
11	------do	1 Bates numbering machine	15.75	
June 9	------do	Making and repairing rubber stamps.	4.57	
July 14	------do	------do	3.54	
				150.91
1591.				
Aug. 14	H. Baumgarten	1 numbering machine, 5-wheel	14.50	
14	------do	1 pad and one bottle ink	.75	
Sept. 16	------do	1 numbering machine, Monarch	15.00	
16	------do	3 rubber stamps	.70	
16	------do	1½ dozen Laughton pads	2.03	
19	------do	1 autograph stamp	4.00	
22	------do	6 dozen pads	6.56	
Oct. 10	------do	3 rubber stamps	4.80	
23	------do	metal types	2.20	
29	------do	stencil plates	4.20	
Nov. 18	------do	stencil plates and paste	1.00	
Dec. 2	------do	1 stamp	1.60	
10	------do	repairing stamps	7.15	
10	------do	3 dozen Laughton pads	3.15	
21	------do	6 dozen bottles ink	3.60	
21	------do	1 dozen Laughton pads	1.25	
1892.				
Jan. 4	------do	3 rubber stamps	4.45	
Feb. 15	------do	rubber stamps and stencil plates	5.60	
Mar. 11	------do	repairing stamps	.85	
11	------do	7 dozen stamp pads	5.59	
25	------do	1 stamp	1.75	
Apr. 22	------do	1 dozen Laughton pads	1.25	
25	------do	repairing stamps	5.25	
July 2	------do	1 dozen blue pads	1.05	
18	------do	rubber stamps	7.20	
29	------do	5 rubber stamps	1.25	
				106.73
1891.		Washing towels:		
Aug. 1	Olivia West	1,889, at $1	18.89	
31	------do	1,934, at $1	19.34	
Sept. 30	------do	1,946, at $1	19.46	
Oct. 30	------do	1,920, at $1	19.20	
Nov. 25	------do	2,020, at $1	20.20	
Dec. 23	------do	2,115, at $1	21.15	
1892.				
Jan. 29	------do	1,868, at $1	18.68	
Feb. 29	------do	1,918, at $1	19.18	
Mar. 30	------do	1,960, at $1	19.60	
Apr. 29	------do	1,915, at $1	19.15	
May 27	------do	1,990, at $1	19.90	
June 29	------do	2,100, at $1	21.00	
				235.75
1891.				
Aug. 1	Mary L. Johnson	1,889, at $1	18.89	
31	------do	1,934, at $1	19.34	
Sept. 30	------do	1,946, at $1	19.46	
Oct. 30	------do	1,920, at $1	19.20	
Nov. 25	------do	2,020, at $1	20.20	

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Dec. 23	Mary L. Johnson	2,115, at $1	$21.15	
1892.				
Jan. 29	------do	1,555, at $1	15.55	
Feb. 29	------do	1,918, at $1	19.18	
Apr. 29	------do	1,915, at $1	19.15	
May 27	------do	1,990, at $1	19.90	
June 29	------do	2,100, at $1	21.00	
				$213.02
1891.				
Aug. 1	Minnie Kelly	1,889, at $1	18.89	
31	------do	1,934, at $1	19.34	
Sept. 30	------do	1,946, at $1	19.46	
Oct. 30	------do	1,920, at $1	19.20	
Nov. 25	------do	2,020, at $1	20.20	
Dec. 23	------do	2,115, at $1	21.15	
1892.				
Jan. 29	------do	1,723, at $1	17.23	
Feb. 29	------do	1,918, at $1	19.18	
Mar. 30	------do	1,960, at $1	19.60	
Apr. 29	------do	1,915, at $1	19.15	
May 27	------do	1,990, at $1	19.90	
June 29	------do	2,100, at $1	21.00	
				234.30
1891.				
Aug. 1	Ellen Blinkhorn	1,889, at $1	18.89	
Aug. 31	------do	1,934, at $1	19.34	
Sept. 30	------do	1,946, at $1	19.46	
Oct. 30	------do	1,920, at $1	19.20	
Nov. 25	------do	2,020, at $1	20.20	
Dec. 23	------do	2,115, at $1	21.15	
				118.24
1892.				
Jan. 29	------do	1,868, at $1	18.68	
Feb. 29	------do	1,918, at $1	19.18	
Mar. 30	------do	1,960, at $1	19.60	
Apr. 29	------do	1,915, at $1	19.15	
May 27	------do	1,990, at $1	19.90	
June 29	------do	2,100, at $1	21.00	
				117.51
1891.				
Aug. 1	Esther G. Nally	1,489, at $1	14.89	
31	------do	1,623, at $1	16.23	
Sept. 30	------do	1,615, at $1	16.15	
Oct. 30	------do	1,590, at $1	15.90	
Nov. 25	------do	750, at $1	7.50	
				70.67
Nov. 25	E. D. Kirk	786, at $1	7.86	
Dec. 23	------do	1,473, at $1	14.73	
				22.59
1892.				
Jan. 29	T. D. Kirk	1,400, at $1	14.00	
Feb. 29	------do	1,389, at $1	13.89	
Mar. 30	------do	1,317, at $1	13.17	
Apr. 29	------do	1,562, at $1	15.62	
May 27	------do	1,637, at $1	16.37	
June 29	------do	1,730, at $1	17.30	
				90.35
1891.				
Aug. 1	Betty Smith	1,889, at $1		18.89
31	Betsey Smith	1,934, at $1	19.34	
Sept. 30	------do	1,946, at $1	19.46	
Oct. 30	------do	1,920, at $1	19.20	
Nov. 25	------do	2,020, at $1	20.20	
Dec. 22	------do	2,115, at $1	21.15	
1892.				
Jan. 29	------do	1,868, at $1	18.68	
Feb. 29	------do	1,918, at $1	19.18	
Mar. 30	------do	1,960, at $1	19.60	
Apr. 29	------do	1,915, at $1	19.15	
May 27	------do	1,990, at $1	19.90	
June 29	------do	2,100, at $1	21.00	
				216.86
1891.				
Aug. 1	Anna M. Anderson	1,889, at $1	18.89	
31	------do	1,934, at $1	19.34	
				38.23
Sept. 30	Annie M. Anderson	1,946, at $1	19.46	
Oct. 30	------do	1,920, at $1	19.20	
Nov. 25	------do	2,020, at $1	20.20	

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Dec. 23	Annie M. Anderson	2,115, at $1	$21.15	
1892.				
Jan. 29	do	1,868, at $1	18.68	
Feb. 29	do	1,918, at $1	19.18	
				$117.87
Mar. 30	Anna M. Anderson	1,960, at $1	19.60	
Apr. 20	do	1,915, at $1	19.15	
				38.75
May 27	do	1,990, at $1		19.90
June 29	Annie M. Anderson	2,100, at $1		21.00
1891.				
Aug. 1	Sophia Collins	1,889, at $1	18.89	
31	do	1,934, at $1	19.34	
Sept. 30	do	1,946, at $1	19.46	
Oct. 30	do	1,920, at $1	19.20	
Nov. 25	do	2,020, at $1	20.20	
Dec. 23	do	2,115, at $1	21.15	
1892.				
Jan. 29	do	1,868, at $1	18.68	
Feb. 29	do	1,918, at $1	19.18	
Mar. 30	do	1,960, at $1	19.60	
Apr. 29	do	1,915, at $1	19.15	
May 27	do	1,990, at $1	19.90	
June 29	do	2,100, at $1	21.00	
				235.75
Mar. 30	E. Vermillion	1,825, at $1		18.25
1891.				
Aug. 14	M. W. Beveridge	Ice pitcher and bowl	11.75	
14	do	6 dozen covered soaps at $2.40	14.40	
26	do	Metal tray	.70	
Oct. 3	do	Cuspidors	1.80	
3	do	2 CC Nappie (white)	.45	
3	do	Silver plated pitcher, bowl, and tray.	16.00	
3	do	1 mug	.18	
Nov. 18	do	1 china cuspidor	.75	
1892.				
Apr. 4	do	4 buckets, 3 nappies	2.16	
June 4	do	buckets and cuspidor	7.45	
July 12	do	Silver plated ice pitcher and tray	13.25	
				68.89
1891.				
Sept. 10	The Washington Post Co	Advertising sale of condemned property.	2.30	
1892.				
Jan. 23	do	do	4.20	
29	do	Advertising proposals for tin roof	6.30	
July 2	do	Advertising sale of two horses and condemned property.	3.30	
2	do	Advertising for proposals	1.20	
1891.				
Sept. 9	do	Advertising proposals for book-binding material.	2.10	
1892.				
Aug. 5	do	Advertising proposals for ice, etc.	7.77	
				27.17
1891.				
Aug. 14	Ernest Betz	1 dozen tin cans	4.50	
1892.				
Aug. 10	do	16 pieces galvanized iron	2.00	
10	do	Lining box with zinc	1.50	
				8.00
1891.				
Oct. 10	Office Specialty Manufacturing Co.	Roller for copier and repairing same.	2.50	
Nov. 19	do	Rubber roller and bearing for press.	2.50	
1892.				
Apr. 23	do	Basin copy press	1.25	
				6 25
1891.				
Aug. 14	The Norris Peters Co	Photolithographing and printing.	7.00	
26	do	do	7.00	
				14.00
1892.				
Feb. 15	do	do	14.00	
July 18	do	do	28.00	
				42.00

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1891.				
Aug. 14	Rowland A. Robbins	120 dozen Sapolio, at 78 cents	$93.60	
Oct. 10	------do	24 gunny sacks	12.00	
1892.				
Feb. 8	------do	100 dozen Sapolio	78.00	
Apr. 23	------do	1 dozen gunny sacks	6.00	
June 25	------do	24 gunny sacks	12.00	
				$201.60
1891.				
Aug. 21	India Alkali Works	2 barrels savogran	28.60	
Oct. 10	------do	------do	28.60	
Nov. 19	------do	------do	28.60	
1892.				
Feb. 8	------do	------do	28.60	
Apr. 4	------do	------do	28.60	
29	------do	------do	28.60	
June 25	------do	1 barrel savogran	14.30	
				185.90
Feb. 8	Andrew J. Joyce's Sons	Resetting 2 tires and repairing truck, etc.	1.50	
Mar. 12	------do	Repairing truck handle	1.00	
12	------do	Repairing one iron handle	.75	
Apr. 14	------do	Repairing truck, awning frame, furnishing one axle nut, iron brake, etc.	4.25	
				7.50
1891.				
July 27	J. U. Burket & Co	1 electric trip gong	25.00	
Sept. 16	------do	3 sets motor brushes, at $2	6.00	
Dec. 29	------do	1 set dials for watchman's clock	4.00	
1892.				
Apr. 16	------do	Repairing magneto generators	5.75	
June 29	------do	3 sets brushes for electric motor, at $2.	6.00	
				46.75
1891.				
Aug. 3	Acker and Kenner	Chamois skins, brushes and soap	75.54	
14	------do	Carbolic soap	11.10	
25	------do	Phosphorous paste	.80	
Sept. 1	------do	Soap	32.88	
7	------do	Acetic acid	2.16	
7	------do	Blacking	6.18	
19	------do	Brushes for typewriter	4.00	
26	------do	Phosphorous paste	4.50	
Oct. 23	------do	Chamois skins	9.50	
23	------do	Oxalic acid	3.00	
Nov. 6	------do	Hair brushes	10.20	
Dec. 2	------do	Chamois skins	14.25	
10	------do	Blacking	6.18	
17	------do	Thermometers	1.50	
1892.				
Jan. 4	------do	Chamois skins	4.75	
25	------do	Ascetic acid and hair brushes	12.36	
Feb. 8	------do	Thermometers	3.00	
				201.90
Feb. 24	Acker & Kenner	Hair brushes, blacking and alum	14.69	
Mar. 11	------do	Soap	8.22	
11	------do	Acetic acid	2.16	
12	------do	Hair brushes	10.20	
May 19	------do	------do	5.10	
19	------do	Blacking	1.03	
July 2	------do	Acetic acid	2.16	
12	------do	Brushes, blacking, and chamois skins.	43.52	
				87.08
1891.				
Aug. 14	Wyckoff, Seamons & Benedict.	Brushes for typewriter	4.50	
Oct. 10	------do	------do	6.75	
Nov. 7	------do	Copyholders	4.00	
1892.				
Mar. 2	------do	------do	2.00	
May 5	------do	Ribbons, screwdrivers, and brushes.	7.00	
				24.25
1891.				
Dec. 21	Woodward & Lothrop	Cheese cloth	2.10	
1892.				
Mar. 12	------do	------do	2.10	
22	------do	Sheets and pillow cases	4.08	
Apr. 29	------do	Muslin	.27	
July 2	------do	Palmleaf fans	.45	
				9.00

Contingent expenses, Treasury Department, 1892—Continued.

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
Jan. 16	Melville Lindsay	Gloves	$1.00	
Feb. 24	——do	3 O. G. coats	9.00	
Mar. 17	——do	Ice apron, med	1.25	
				$11.25
May 3	M. G. Copeland & Co	Re-covering awning frames	16.00	
June 11	——do	Round slides and awning pulleys	7.10	
Aug. 10	——do	One awning	5.00	
				28.10
1891.				
Aug. 14	Radcliffe, Darr & Co	Auctioneer services	37.32	
Oct. 29	——do	——do	4.14	
1892.				
Apr. 23	——do	——do	13.49	
				54.95
1891.				
Aug. 14	Jas. L. Barbour & Son	Soap and sapolio	169.70	
14	——do	Candles	8.00	
14	——do	——do	8.00	
Sept. 7	——do	Insect powder and soap	121.50	
26	——do	Flour	3.30	
Oct. 29	——do	Concentrated lye	4.20	
29	——do	Matches	16.30	
Dec. 10	——do	Soap	69.50	
1892.				
Jan. 14	——do	Olein soap	43.20	
Feb. 15	——do	Flour	3.30	
Mar. 30	——do	Soap and matches	74.39	
30	——do	Matches	8.15	
Apr. 4	——do	Concentrated lye	2.10	
May 14	——do	Flour	3.30	
				534.94
1892.				
June 4	Jas. L. Barbour & Son	Matches	24.45	
9	——do	Salsoda	3.00	
				27.45
1891.				
Aug. 14	Jordan & Christie	Dusters	27.00	
14	——do	Hinds's brush handles	83.00	
Sept. 1	——do	——do	83.00	
Nov. 6	——do	Gray dusters	11.25	
1892.				
Mar. 2	——do	Shoe polishers	5.50	
12	——do	Gray dusters	13.50	
Apr. 14	——do	Hinds's brush handles	25.50	
June 11	——do	Dusters, floor-brush handles	39.00	
				287.75
Mar. 17	Newman & Son	1 type cleaner	2.00	
June 11	——do	——do	2.00	
				4.00
1891.				
Aug. 14	J. H. Chesley & Co	Rattraps, buckets, and cuspidors	58.01	
Sept. 7	——do	Mop handles and baskets	10.00	
Oct. 3	——do	Mouse traps, dust pans, ice tongs, drip pans	19.92	
Nov. 7	——do	Corkscrews and cuspidors	9.32	
Dec. 10	——do	Cuspidor	5.92	
1892.				
Feb. 8	——do	Lamp wick	.38	
8	——do	Cotton mops and wick	7.40	
Mar. 2	——do	Cuspidors, baskets, and traps	23.10	
April 4	——do	Baskets, rattraps	16.55	
May 3	——do	Baskets, mop handles, dust pan, handles, ladder	18.74	
July 12	——do	Ice tongs	3.50	
12	——do	Corkscrews, mouse traps, cuspidors	18.24	
				191.08
1891.				
Aug. 14	Chas. T. Carter & Co	Whisk brooms	16.30	
14	——do	——do	16.30	
21	——do	Wire nails	19.25	
Sept. 10	——do	Brooms	24.90	
Nov. 7	——do	——do	12.45	
Dec. 10	——do	——do	20.37	
1892.				
Jan. 4	——do	——do	8.15	
23	——do	——do	8.15	
23	——do	——do	1.62	
Mar. 4	——do	Daubers	9.77	
Apr. 18	——do	Daubers and brooms	19.79	
19	——do	Soap and brooms	15.72	
May 19	——do	Buckets and brooms	12.45	
		Brooms		

Contingent expenses, Treasury Department, 1892—Continued.[1]

MISCELLANEOUS ITEMS—Continued.

Date.	Name.	Item.	Amount.	Total.
1892.				
May 19	Chas. T. Carter & Co	Brooms	$8.15	
23	do	Toilet soap	11.64	
23	do	do	11.64	
June 29	do	Daubers and brooms	28.14	
				$244.79
	Bureau Engraving and Printing.	Repairing cancelling machine, account referred to First Auditor		4.00
		Expended		9,929.44
		Outstanding accounts		58.06
		Unexpended		12.50
		Appropriation	10,000.00	
		Total	10,000.00	10,000.00

RECAPITULATION.

Appropriation.	Appropriated.	Repayment.	Expended.	Outstanding accounts.	Unexpended.
Binding, etc	$2,500.00		$2,460.75	$25.50	$13.75
Investigation, etc	700.00		484.56	3.00	212.44
Freight, etc	3,500.00		1,812.77		1,687.23
Rent	5,520.00		3,719.88		1,800.12
Horses, wagons, etc	4,000.00		3,910.74		89.26
Ice	3,500.00		1,819.27		1,680.73
File-holders, etc	3,000.00		2,996.01		3.99
Fuel, etc	10,000.00		9,972.10	5.05	22.85
Gas, etc	16,000.00		15,803.02		196.98
Carpets, etc	6,500.00		6,494.04	2.40	3.56
Furniture, etc	10,000.00	$245.63	10,175.76	61.05	8.82
Miscellaneous items	10,000.00		9,929.44	58.06	12.50
Total	75,220.00	245.63	69,578.34	155.06	5,732.23

Total appropriation	$75,220.00	
Total repayments	245.63	
		$75,465.63
Total expended	69,578.34	
Total outstanding	155.06	
Total unexpended	5,732.23	
		75,465.63

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 11.

REPORT OF THE BOARD OF ORDNANCE AND FORTIFICATION.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING

THE REPORT OF THE BOARD OF ORDNANCE AND FORTIFICATION, COVERING THE PERIOD FROM OCTOBER 24, 1891, TO OCTOBER 31, 1892.

DECEMBER 6, 1892.—Referred to the Committee on Appropriations and ordered to be printed.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1892.

WAR DEPARTMENT,
Washington City, December 5, 1892.

SIR: In compliance with the provisions of the act of Congress approved February 24, 1891 (26 Stat., 770), I have the honor to transmit herewith the report of the Board of Ordnance and Fortification, covering the period from October 24, 1891, to October 31, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

BOARD OF ORDNANCE AND FORTIFICATION,
War Department, October 31, 1892.

SIR: In conformance with the provision of the act "making appropriations for fortifications, and for the armament thereof," etc., approved February 24, 1891, the Board of Ordnance and Fortification submits herewith its annual report, covering the period from October 24, 1891, to October 31, 1892, and requests that the same be forwarded to Congress upon its assembling.

For the Board,

Very respectfully, your obedient servant,

J. M. SCHOFIELD,
Major-General, U. S. Army, President of the Board.

The SECRETARY OF WAR.

REPORT OF THE BOARD OF ORDNANCE AND FORTIFICATION.

BOARD OF ORDNANCE AND FORTIFICATION,
War Department, October 31, 1892.

The SECRETARY OF WAR:

In compliance with the provision of the act "making appropriations for fortifications, and for the armament thereof," etc., approved February 24, 1891, the Board of Ordnance and Fortification submits herewith its annual report, covering the period from October 24, 1891, to October 31, 1892.

CHANGES IN BOARD.

By order of the Secretary of War dated January 21, 1892, Lieut. Col. A. Mordecai, Ordnance Department, was relieved from duty as the ordnance member, and Maj. Clifton Comly, Ordnance Department, was assigned to duty on the Board in his stead. And by order dated April 20, 1892, Capt C. C. Morrison, Ordnance Department, was assigned as Recorder in place of Capt. D. M. Taylor, Ordnance Department, relieved.

In other respects the personnel of the Board has remained unchanged.

DUTIES OF BOARD.

For convenience of reference, that part of the act of September 22, 1888, which defines the functions and scope of action of the Board, is here repeated, as follows:

> The said Board shall be under the direction of the Secretary of War and subject to his supervision and control in all respects, and shall have the power to provide suitable regulations for the inspection of guns and materials at all stages of manufacture, to the extent necessary to protect fully the interests of the United States and generally to provide such regulations concerning matters within said Board's operations as shall be necessary to carry out to the best advantage all duties committed to its charge.

The duty of prescribing "suitable regulations for the inspection of guns and materials at all stages of manufacture" was performed as set forth in the first report of the Board, and said regulations have not since been changed.

The attention of the Board during the past year has been given principally to the prosecution of work already initiated in the carrying out of tests of guns, mortars, and carriages; experiments with explosives, torpedoes, and projectiles; and the examination of and recommendation with reference to many new devices for guns, carriages, projectiles, explosives, and other engines and implements of war, and to such miscellaneous matters as have been referred to it for action or recommendation.

During the year the expenditure of the money allotted under pre-

vious appropriations has gone on under the proper departments, and progress has been made, in some particulars not as great as could have been desired, but in the main in a satisfactory manner.

A very distinct and upon the whole gratifying advance has been made in the most important elements of national defense.

APPROPRIATIONS AND ALLOTMENTS.

The statute before referred to requires that the report "shall give a detailed statement of all contracts, allotments, and expenditures made by the Board."

As explained in the former report of the Board, while the allotments of appropriations are made by it (subject to the approval of the Secretary of War), the money is expended and the contracts are made by and through the Engineer and Ordnance Departments, respectively, according to the nature of the expenditure, whether for emplacements or for armament. The entire subject of torpedoes, whether fixed or movable, has been under the direction of the Engineer Department.

The total amount appropriated up to the date of the former report, for fortifications and armament, subject to allotment by the Board, and to be expended, in the language of the statute, "under the direct supervision of the Board," was the sum of.....	$11,385,332.00
The total amount allotted to date of that report was.....	10,526,621.26
Expended for expenses of Board.....	6,123.70
Turned into Treasury.....	443.80
Lapsed appropriations.....	52,400.00
Total allotments, etc.....	10,585,588.76
Balance unallotted.....	799,743.24
Aggregate.....	11,385,332.00

By the act of July 23, 1892, the sum of $210,000 was appropriated to be expended under the supervision of the Board in carrying forward experimental work and for the expenses of the Board.

A table is hereto appended, marked Appendix A, showing the total allotments to date, the allotments made during the last year, the objects for which allotted, and the balance unallotted, from which it will appear that the whole amount allotted during the year was $445,267.92, and the amount remaining at the date of this report unallotted is $564,475.32.*

ARMY GUN FACTORY.

As stated in the former report of the Board, at the date of that report the north wing of the gun factory at Watervliet Arsenal was completed and equipped with machinery, except the heaviest, and that was progressing favorably. Appropriation had then been made for the erection and partial equipment of the south wing of the factory and the work of building was well under way.

Up to the date of that report there had been allotted for the factory and its equipment the sum of $1,772,543, besides the sum of $29,888 allotted to equip the old (or small) gun shop, which is employed in fabricating field and siege guns.

* Since the date of this report there have been allotted sums aggregating $237,183.29, leaving a balance to the credit of the Board of $327,292.03, of which amount $134,500 is for a special purpose and no longer available for allotment by the Board. The balance actually available to carry on the work under the supervision of the Board is, therefore, $192,792.03.

Since then the act of July 23, 1892, made the following appropriation:

The Secretary of War is hereby authorized and directed to procure by purchase or manufacture the following, namely: Machine tools and fixtures adapted to the manufacture of steel seacoast cannon to complete the equipment of the south wing of the Army Gun Factory, Watervliet Arsenal, West Troy, New York, the cost of which shall not exceed the sum of $346,600.

Making a total appropriated and allotted for the gun factory to date of $2,149,031.

The plans for the building and for the placing of the machinery were prepared and the work of erection and equipment carried forward by the Ordnance Department.

The plans received the approval of the Board November 8, 1888, and from that date the work of building and finishing this great structure has steadily progressed.

The general plan of the building is a rectangle 966 feet long and from 125 to 155 feet in width. The middle section of the building is 166 feet by 81 feet. In it are located the shrinkage pit, with its furnaces, the engine room, the dynamo room, and the tool room.

A west extension of this middle section, 50 feet by 75 feet, constitutes the boiler house. In an east extension, 57 feet 4 inches by 17 feet 4 inches, is the forge shop for making tools.

Northward from the middle section extends the main aisle of the north wing, 400 feet long by 75 feet wide, between the pillars supporting the arches upon which rests the main roof. The main aisle is flanked on either side by aisles 25 feet wide by 400 feet long. In the main aisle, arranged transversely, is the heavy machinery, under the craneway. It consists of 8 boring and turning lathes, 5 turning lathes, 2 jacket lathes, 1 rifling machine, 3 threading and slotting machines, and some smaller machines, all capable of working upon 8, 10, and 12 inch guns.

Overhead is the 30-ton crane way, with its 50 feet span, running from the north wall of the building to the commencement of the south wing, over the machines in the main isle, past the shrinking pit, and 20 feet beyond the railroad track which traverses the building. On this crane way are mounted two 30-ton square-shaft cranes.

In the east aisle of the north wing are located the milling machines, drills, shapers, slotters, lathes, and horizontal boring machines, used in the fabrication of the breech mechanism and small chase hoops. In the west aisle are located the vertical boring mills for breech hoops, the tool room, the oil room, the grinding machines, and four large planers.

Southward from the middle section, the main aisle, 81 feet wide, extends 400 feet to the end of the south wing. It has on the west a side aisle 52 feet by 400 feet, and on the east a side aisle 22 by 400 feet.

In the main aisle of this south wing it is designed to place transversely 5 turning and boring lathes, 5 turning and finishing lathes, 1 rifling machine, 1 threading and slotting machine, for 10 and 12 inch guns, and 3 turning and boring lathes, 1 turning and finishing lathe, 1 turning and boring jacket lathe, and 1 threading and slotting machine suitable for 12 and 16 inch guns.

In the west side aisle will be the hoop and jacket lathes, the planers and slotting machines, together with vertical boring machines; and in the east side aisle the machinery for fabricating breech mechanism.

From the south wall, over the main aisle, past the shrinkage pit, runs an electric crane capable of carrying 150 tons. These ponderous loads can be handled with the greatest facility, longitudinally, later-

ally, or vertically, or all three at once. The span of the crane way is 60 feet.

The entire building is finished with the exception of laying the floor in the south wing. The north wing is now fully equipped, and has been in operation for nearly two years. The south wing is rapidly receiving the complement of machinery, and a portion of it will be running by December of the present year.

Contracts have already been made for the machines to be used on the guns, including 12-inch caliber, and it is understood that specifications are being prepared for the purchase of machinery adapted for finishing the contemplated 16-inch guns, as recommended by the Board in its former report.

There have been finished and assembled at the Gun Factory up to the present time the following: One 12-inch B. L. rifle, one 10-inch B. L. rifle, thirteen 8-inch B. L. rifles, and one 12-inch all-steel B. L. mortar; also seventy 3.2-inch B. L. rifles and one 3.6-inch B. L. rifle.

It is anticipated that by January 1, 1893, there will have been completed, in addition to these, four 12-inch and ten 10-inch B. L. rifles of the adopted service pattern, besides the following field and siege guns: Twenty-five 3.2-inch B. L. rifles, ten 5-inch B. L. siege rifles, ten 7-inch B. L. siege howitzers, twenty-four 3.6-inch B. L. field rifles, and sixteen 3.6-inch B. L. field mortars.

The total of seacoast guns then completed at the gun factory will be as follows: Five 12-inch B. L. rifles, eleven 10-inch B. L. rifles, and thirteen 8-inch B. L. rifles.

Undoubtedly as the workmen become more expert and the mechanism perfected, guns will be turned out not only more rapidly than heretofore, but at less cost for the finishing and assembling.

As the new south wing of the factory comes into operation the capacity and the output will be correspondingly increased. It is estimated by the Chief of Ordnance that when that wing is fully completed and equipped the factory will have a capacity of twelve 8-inch, fifteen 10-inch, fifteen 12-inch, and three 16-inch guns, or their equivalent of thirty-four 12-inch guns, per year. Experience leads to the belief that this is an underestimate rather than an overestimate, and that the actual output is likely to be much greater.

It is most earnestly recommended that the necessary appropriations be made from time to time to keep the gun factory in operation to its full capacity, thus economizing the investment in the plant and the acquired skill of workmen, and insuring the speedy protection of our coasts, so much needed. This is one of those things which, if it is to be done, ought to be done quickly.

STEEL FORGINGS FOR GUNS.

Up to the date of the former report the amount allotted for forgings for seacoast guns (8, 10, and 12 inch) was $2,300,000, and this, when added to the one hundred guns to be made by contract, was estimated to provide for sixty 8-inch, eighty-five 10-inch, and forty-nine 12-inch guns, and to leave forty-two 8-inch, one hundred and thirty-seven 10-inch, and one hundred and fifty-four 12-inch guns, besides forty-four 16-inch and six 14-inch guns (as estimated by the Board on Fortifications and Other Defenses in 1886), for which no provision has been made; besides these there are to be twenty-four 10-inch and seven hundred 12-inch seacoast mortars, for only eighty-one of which Congress has yet appropriated.

The act of July 23, 1892, appropriated for steel forgings for 8-inch, 10-inch, and 12-inch guns the sum of $800,000, estimated to supply forgings for ten 8-inch, twelve 10-inch, and ten 12-inch guns.

The total forgings provided for, including these, is as follows:

Forgings for—	8-inch.	10-inch.	12-inch.
Act of 1888	23	23	15
Act of 1891	12	12	9
Contract guns, 1890–'91	25	50	25
Act of 1892	10	12	10
Total	70	97	59

Leaving to be supplied forgings for thirty-two 8-inch, one hundred and twenty-five 10-inch, and one hundred and forty-four 12-inch guns, on the basis of the report of the Board on Fortifications and Other Defenses.

The Board recommends that appropriation be made for the procurement of additional steel forgings, sufficient to keep the gun factory fully employed to its capacity, and that the purchase of forgings for a type 16-inch B. L. rifle be included in such appropriation. As Congress has already made appropriation for furnishing the south wing of the Army Gun Factory with the machinery for the finishing and assembling of 16-inch guns, the forgings for a type gun should be immediately provided for, so that when the machinery shall be in place, the material will be in readiness for the shop.

The Board would call attention to the fact that as the means of attack are from year to year being perfected and made more formidable, the number of guns required for defense will be correspondingly increased.

CONTRACT GUNS.

As no party has yet presented any "completed single-charge breech-loading steel gun of 10 or 12 inch caliber," etc., as provided for by section 6 of the act of September 22, 1888, and, as since that date the Army Gun Factory has been put in successful operation and the purchase of one hundred guns under the acts of 1890 and 1891 has been contracted for, the Board is of opinion that the legislation referred to might be repealed so far as relates to the purchase of fifty 10-inch and fifty 12-inch guns of such type.

HUNDRED-GUN CONTRACT.

This contract, which was pending at date of former report, was duly entered into, and the Bethlehem Iron Company is now engaged in the installation of the necessary plant for its execution. There appears to be no doubt that it will be accomplished within the terms of the contract. The company has contracted for the manufacture of substantially the ordnance type gun as the one to be produced, and as this has already been pretty thoroughly tested in the 8-inch and 10-inch calibers, and as the forgings will therefore be nearly identical with those turned out for the Army Gun Factory, there appears to be no reason why the delivery of these one hundred guns should not begin within the year 1893.

WEST POINT FOUNDRY CONTRACT.

The contract for finishing and assembling eleven 8-inch guns is progressing favorably, as the Board is advised, and three of the guns have been completed and are ready for test and proof under the regulations and rules of inspection adopted by this Board.

With the established capacity of the Army Gun Factory, it is not believed to be necessary to provide for the finishing and assembling of any more 8-inch guns by contract, unless the forgings are provided outside the working capacity of the plant established by the Government.

EXPERIMENTAL GUNS.

Some progress has been made during the year in the fabrication of experimental guns.

The Woodbridge 10-inch wire-wound gun is at last practically completed. It has been built under the supervision of the inventor, Dr. W. E. Woodbridge, at the Watertown Arsenal, Massachusetts.

The wire winding has been completed and the gun has been transferred to the Watervliet Gun Factory to be finished, and to receive its breech mechanism.

The gun consists of a continuous steel tube, overlaid throughout its rear half with a cylinder of closely fitted steel staves, the whole wound with tinned steel wire, to be soldered or brazed in an oven. The whole length of the gun is divided into three sections by steel rings or bands, and forward of the staves is wound directly upon the steel tube.

The several amounts allotted by the Board for this gun aggregate $41,949, but as the manufacture was commenced before the organization of the Board this does not represent the whole amount expended upon the gun.

It is presumed that during the coming year it will be tested and its merits or defects determined.

The Crozier wire-wound 10-inch B. L. rifle, also known as the Ordnance wire-wound gun, being made from designs of the Ordnance Department, is approaching completion at the Army Gun Factory at Watervliet.

This gun, as stated in the former report, consists of a steel tube, overlaid from breech to muzzle with a practically continuous covering of steel wire wound in layers, with a jacket cylinder enveloping the steel wire over the reinforce and a continuous layer of steel hoops covering the wire from the trunnion band forward to the muzzle. The coils of wire are electrically welded, end to end, so that the gun is wound with a continuous strand of wire.

The breech mechanism is of the usual service type. This high-power gun will be completed, and will doubtless be tested, during the coming year.

Every practicable precaution seems to have been taken to overcome the most obvious weak point of wire-wound guns, which lies in insufficient longitudinal strength.

As this type of gun does not necessitate the handling and finishing of the great forgings required in the built-up construction, and as it is claimed that it could be built both more quickly and more cheaply, should it satisfactorily stand the tests to which it will be subjected, it may become a rival of the built-up guns.

The test of this type of gun will be followed with interest by all watching the development of gun construction.

The Brown segmental-tube wire gun, an experimental gun built by

a private company, but to be tested by the Board, for which purpose an allotment for ammunition and for the preparation of a carriage has been made, is now nearing completion and will soon be ready for test. The gun is, as its name implies, constructed with a tube composed of longitudinal segments, and these segments closely fitted to each other and wound with steel wire. It is proposed to line the segmental tube throughout the reinforce, and if needful throughout its entire length, with a steel lining tube, as is understood, for the double purpose of preventing erosion in the joints of the segments and to strengthen the construction. The gun now being constructed is a 5-inch B. L. rifle, with a modification of the usual breech mechanism. A program for testing it to the extent of the first hundred rounds has been proposed, and it is expected that by the end of the present calendar year the test will have been commenced and perhaps completed.

The gun is claimed to be capable of withstanding exceptionally high pressures, giving correspondingly high velocities.

The Board is not of opinion that the test of so small a caliber as 5 inches can be of any decided value in determining the merits of the system in the higher calibers—say 10 and 12 inches—in which, if at all, it would be especially useful. There is no difficulty in obtaining sufficient strength in guns of as small caliber as 5 inches, and any results obtained in a 5-inch gun would not be conclusive as to the larger calibers. Therefore the test of this gun is not awaited with the same degree of interest that it would otherwise be.

Haskell multicharge gun.—The Board is not advised of the present state of advancement of the 8-inch Haskell multicharge gun, now under fabrication by the Haskell Multicharge Ordnance Company at Reading, Pa., for which an allotment of $55,000 was made by the Board in April, 1890.

The Woodbridge 10-inch B. L. rifle, cast iron, wire wound, which was at Sandy Hook proving ground at date of last report, has been tested during the year. It has thus far stood the tests to which it has been subjected, yielding velocities of 1,840 feet per second with a charge of 160 pounds of powder, and a projectile of 453 pounds. The gun has been fired 161 rounds, and the test is regarded as completed. The muzzle energy of the gun is so much less than that of the steel gun, and the erosion so much greater, that the Board for Testing Rifled Cannon does not recommend it as suitable for service under present conditions.

MORTARS.

The construction of B. L. rifled seacoast mortars, under the allotments made by the Board, has progressed favorably during the past year.

The thirty 12-inch B. L. rifled mortars, cast iron, hooped with steel, being assembled by the Builders' Iron Foundry, of Providence, R. I. (steel forgings furnished by the Midvale Steel Works), have been completed and delivered at the Sandy Hook Proving Ground.

These mortars, so far as tested, have proved a satisfactory arm, with the moderate charges and pressures to which they have been subjected, but the greater power and endurance of the all-steel 12-inch B. L. rifled mortar give it a very decided preference over the cast-iron steel-hooped type. The act of 1892 made no provision for the construction of any more of the latter, and appropriated but $100,000 for an additional

number of the all-steel type, estimated to produce seven of these mortars.

While unquestionably the steel-hooped mortar makes a very serviceable arm in certain locations, yet, in view of the greater power of the all-steel mortar, this is emphatically a case where the best is the cheapest.

The contract with the South Boston Iron Works for forty-three 12-inch B. L. mortars, cast iron, hooped with steel, is progressing, and the contract should be completed by the end of 1893. It is understood that the work is being performed at the Builders' Iron Foundry, Providence, R. I.

These 43 mortars are substantially of the same type as the 30 before mentioned, and will not require a separate endurance test, but will all need to be proved.

It is estimated that 14 of the mortars under this contract will be completed by the end of 1892, making 44 of this type then completed and ready for proof.

The all-steel type mortar is now mounted at Sandy Hook, and is undergoing test.

No more *cast iron 12-inch B. L. mortars* have been presented for test, under the act of 1888, and the Board renews its recommendation that so much of that act as relates to such mortars be repealed, not regarding the material suitable for modern rifled mortars, and considering the element of safety and endurance as all important.

SEACOAST GUN CARRIAGES.

The progress in the development of carriages for high-power seacoast guns of 8, 10, and 12 inches caliber has been less satisfactory than in the other elements of fortification.

As stated under the head of Army Gun Factory, there will probably be completed by the end of this year thirteen 8-inch, eleven 10-inch, and five 12-inch built-up guns, besides two wire wound 10-inch B. L. rifles and three 8-inch B. L. rifles from the West Point foundry, making a total of thirty-four high-power guns ready for service; and yet, except the experimental 10-inch pneumatic gun carriage, which has been tested, the 12-inch gun-lift carriage (purchased of the Creusot Works in France), now undergoing test at the Sandy Hook battery, the two spring-return (Easton and Anderson) mortar carriages, including the type carriage (purchased in England) and the Canet mortar carriage (purchased in France), we have not a single completed modern carriage for either gun or mortar.

The difficulties and delays attending the development and perfecting of carriages have been found to be greater, and less under control, than those relating to the production of the guns and mortars. Moreover, the work of developing carriages was postponed much beyond that of production of guns.

Experimental pneumatic disappearing gun carriage for 10-inch gun.—In the act of Congress making appropriations for fortifications and other works of defense, etc., approved September 22, 1888, provision was made for the purchase of a disappearing carriage maneuvered by power. The Pneumatic Gun Carriage and Power Company on November 4, 1888, submitted designs for a carriage of this class, and at subsequent meetings of the Board explanatory letters were received and

interviews had with representatives of this company. On January 10, 1889, the Board informed the company that certain conditions should be fulfilled in any carriages to be tested. These conditions were later embodied in the contract made.

In February a new design was submitted making such modifications as were necessary to adapt it to these conditions. This design was still further changed by the company in April. In the same month the Board, in order to carry out the express desire of Congress that such a carriage should be tested, recommended that there should be procured for trial "a disappearing gun carriage maneuvered by power, of the general design submitted by the Pneumatic Gun Carriage and Power Company with their letters of February, 1889, and April 9, 1889. The price at which this carriage may be contracted for shall be $8,000, to be allowed for guaranty of endurance, working, etc., cost of drawings, salaries of mechanical engineers, incidental expenses, etc., as estimated by the company; and $37,000 for materials and labor in the actual fabrication, which amount is based upon the statements of the Chief of Ordnance as to what similar work costs in this country and as to what price should not be exceeded."

In the construction of this carriage the following were the principal conditions to be fulfilled, viz:

"(1) The carriage shall be suited to a 10-inch B. L. rifle, steel, of 32 calibers length of bore, firing a charge of 250 pounds of powder with a projectile weighing 575 pounds, to which will be given a velocity of about 1,975 feet.

(2) The carriage shall permit of motion for firing through a horizontal angle of 120 degrees, and for loading shall admit of being traversed to a position parallel to and in close vicinity of the parapet.

(3) When in a loading position at right angles to the parapet no part of the gun or carriage shall extend above a plane passed through the interior crest and sloping to the rear at an angle of 7 degrees with the horizon.

(4) The gun when in position for firing shall admit of a depression of 5 degrees and of an elevation of 20 degrees, and the muzzle shall project not less than 5 feet beyond the breast height wall.

(5) When in position for loading, the axis of the gun shall not make with the horizontal an angle greater than 5 degrees, and in this position it shall be practicable to regulate accurately the elevation that may be desired for firing.

(6) The gun shall, without regard to the charge and elevation, always return to the same loading position.

(7) The construction shall be such that the piece may be raised to the firing position, its recoil controlled, the carriage traversed, and the charge raised and loaded in the gun by compressed air power.

(8) A hand-pump capable of charging the recoil cylinders shall be furnished in order that steam power may be dispensed with; and means shall be provided for traversing, elevating, and loading the piece by hand power.

(9) There shall be a differential air-pump connected with the recoil cylinders to make good any slight leakages.

When the carriage shall have been set up ready for use the gun shall be mounted thereon by the Government and the following firing tests shall be made by the Board:

(1) Ten preliminary rounds with such charges as may be suited to test the working and adjustment of the several parts of the carriage.

(2) Ten rounds with full service charges, as may be directed by the Board.

(3) Ten rounds with full service charges as rapidly as the gun can be served.

If the conditions stipulated be fulfilled and the working of the carriage, including the raising, the lowering, the traversing, the elevating, and the loading be satisfactory to the Board, the carriage shall be accepted.

If failures to meet these requirements shall occur, further tests may be made sufficient in number to reasonably demonstrate the capabilities of the carriage, the number of such additional tests to be determined by the Board. If then deemed satisfactory the carriage may be accepted."

To carry out the above there was allotted under section 3 of the act approved September 22, 1888, the sum of $45,000, or so much thereof as might be required.

This action was modified on June 7 so as to increase the allotment to $48,000. This sum did not include the cost of erecting the platform, nor of testing the carriage after it was furnished. The design for the platform, together with the foundation, was to be furnished by and the responsibility for its sufficiency was to rest with the company contracting for the carriage.

On November 15, 1889, the Chief of Ordnance contracted with the Pneumatic Gun Carriage and Power Company for the construction of a carriage to fulfill these and minor conditions.

The platform was commenced August 18, 1890, and completed November 15, 1890. The carriage was declared by the company ready for the mounting of the gun August 8, 1891. Considerable difficulty was encountered in securing suitable powder for its test, and it was not until October, 1891, that such could be obtained. The gun was mounted on the carriage early in November, and the company tested the working of the latter as far as possible without firing.

Actual firing was begun December 4 and suspended December 8, to permit of repairs and alterations to be made. It was resumed February 26, 1892, but again discontinued to allow still further changes to be made by the company. These changes were completed and firing preliminary to the official test was resumed March 22, 1892. It was expected that the carriage would be ready for final test by March 29, but the company requested delay until June. Then occurred a still further postponement awaiting the delivery of powder by the contractors. After its receipt the company asked that the date of trial be set as August 12, that they might make further changes.

Nearly all the firing up to this date had been with a view of correcting any defects that existed in the carriage and for the purpose of adjusting the valves.

In the official test before the Board the first ten rounds demonstrated that with varying charges no difficulty was experienced in controlling the recoil other than the delay of about two minutes, which generally occurred in bringing the gun to the final position for loading, owing to its not resting on the buffers.

The second ten rounds showed that whilst it was possible to load and maneuver by hand, the time required was so great as to render the carriage practically unfit, in that respect, for all the requirements of active service without the power connections. The relative times of maneuvering by hand and by power were as follows: The time of traversing by hand through an arc of 120 degrees, employing seven men, two men being relieved at the end of each minute, was forty-six minutes and twenty-eight seconds. The time of the same operation by power was fifty-four seconds. The time occupied in elevating by hand from 5 degrees depression to 10 degrees elevation, one man on the elevating wheel, relieved each minute, was twelve minutes and thirty-three seconds; by power, thirty-two seconds. The time required to fill the recoil cylinders (725 pounds pressure in each cylinder), using power, was five hours and fourteen minutes; the time for the same operation by hand, working forty men on the pumps and including times consumed in rests and shifting of men, was eleven hours and three minutes. Hence if the air escaped from the cylinders or was emptied therefrom for any purpose, the times mentioned would be required for its replacement. Without the engine the operations of traversing, loading, and pointing by power are not practicable, and by hand too slow to be admissible.

The ten rounds fired for rapidity demonstrated that with fixed

charges giving uniform pressures the recoil was under control, and the several parts worked well. The time of firing ten rounds, deducting delays not incident to the working of the carriage, was one hour, six minutes, fifteen seconds.

There have been fired from this carriage in all 78 rounds, as follows: preliminary to the official test, fired in adjusting the parts, 28 rounds; testing powder, 20 rounds; official test under terms of contract, 30 rounds.

On October 6, 1892, the Board decided that the carriage submitted for trial had passed the prescribed tests to a sufficient degree to justify its acceptance as fulfilling the terms of the contract, and payment for it was recommended. This action, however, is not to be understood as an expression of opinion that the design should be adopted for service.

The Board is not prepared to recommend the further purchase of disappearing carriages of this class, for the reason that there are objections to any system which involves the use of extraneous power, as the cost of protecting the source of power and the liability of the disarrangement of the working parts of the same is very great. Other disappearing carriages for the same gun which are represented to be capable of being operated entirely by hand are now nearly ready for trial and until they have been tested any purchase of pneumatic carriages would be premature.

The manifest objections to the system are, first, the mechanical difficulty of certainly preventing the leakage of air when under such high pressure; second, the necessity of steam power, involving the expense of protection from the enemy's fire, and the use of a mechanism more or less intricate, requiring the services of skilled labor. The design of the carriage is such that this steam power would be necessary for satisfactorily traversing, loading, and elevating, and at least desirable in the condensation of the air in the recoil cylinders.

The reports of the officer in charge of the firing from this carriage will be found in the appendix.

The cost of the carriage with its platform and test, etc., has been as follows:

Allotment for carriage as contracted for	$48,000.00
Allotment for platform	5,627.50
Allotment for test, exclusive of labor by enlisted men	13,100.00
Total	66,727.50

This is exclusive of the cost of engine, condenser, etc., used for test.

It should be noted that these tests were made simply to determine whether the conditions of the contract had been fulfilled in a manner to justify the acceptance of the carriage and payment for the same by the Government. It has been recommended that the Chief of Ordnance be requested to continue the tests with a view to determining whether the mechanism is suited to be operated in service, without the assistance of the experts of the company, who have thus far assisted at all the firings.

Another type of disappearing carriage designed for a 10-inch gun is the *Gordon carriage*, now completed and being placed in position at Sandy Hook to receive its gun for test.

The carriage was designed by Capt. W. B. Gordon, Ordnance Department, and is dependent for its operation upon the counterpoise principle. Its heavier portions are of cast iron, but the more vital working parts are of steel. It is expected that the test of this carriage will begin within the next few weeks.

Still another type now under construction is the modified *Buffington or Crozier-Buffington, disappearing carriage*, for 8 and 10 inch guns. On March 6, 1891, the Board recommended an allotment of $70,000 for the construction of one 8-inch and one 10-inch carriage of this type, under the provisions of the act of February 24, 1891. These carriages are under fabrication at the Southwark Foundry and Machine Company, Philadelphia. When the Board visited Philadelphia in June last it saw some of the heavy castings for this carriage in the foundry of the Midvale Steel Works, but what progress has been made in construction since, the Board is not advised.

The Board regards it as in the highest degree important that all type carriages shall be hastened to completion, and tested as rapidly as possible, that the most satisfactory design may be, without delay, selected for manufacture for service. Guns and mortars are rapidly accumulating without mountings. No effective progress can be made in the defense of our harbors until these guns and mortars can be put in position. Moreover, the construction of batteries and emplacements for the 8-inch and 10-inch guns can not proceed to completion until the type of disappearing carriage shall have been determined upon.

The Creusot carriage for the 12-inch gun lift, now in battery at Sandy Hook, has been received during the year and placed in position upon the lift, and the 12-inch B. L. rifle, the first turned out at the Army Gun Factory, has been mounted upon it. It will be tested as rapidly as circumstances will permit.

The fabrication of two type barbette carriages, 8 and 12 inch, Ordnance design, is progressing at the Watertown carriage factory, and will be completed and ready for test during the coming year.

CASEMATE CARRIAGES.

The gun carriages heretofore discussed, except that for the 12-inch gun lift at Sandy Hook, are designed for 8-inch and 10-inch guns. But the Board, realizing that the time was at hand when the gun factory would be turning out 12-inch guns in considerable numbers, some of which would be mounted in armored casemates, has made an allotment of $80,000 to apply on the purchase of a type casemate carriage for a 12-inch B. L. rifle. The allotment was made in May last, and the carriage is now under construction by contract with Grüsonwerk, of Magdeburg-Buckau. The contract includes the right to manufacture. It is anticipated that it will be completed during the ensuing year.

SEACOAST MORTAR CARRIAGES.

As stated in the last report of the Board, two types of seacoast mortar carriages have been under test at the Sandy Hook proving ground. The first of these is the spring-return carriage, also known as the Easton and Anderson carriage, designed by Lieut. Col. Raskazoff of the Imperial Russian Navy, and modified at the Sandy Hook Proving Ground.

The characteristic feature of this carriage is that it permits a recoil downward and backward along slides, to which the trunnion carriage is clipped at an angle of 50 degrees. The trunnion carriage rests, through two brackets which project upon either side, upon courses of Belleville springs, placed in cylinders 9½ inches in diameter, cast in the side frames of the carriage.

On the line of recoil, and made fast to the side frames, are two hydraulic cylinders, upon which acts a piston, keyed fast to the lower end of the trunnion carriage. Upon firing, the force of the recoil is taken up mainly by the hydraulic cylinders, but in part by the two courses of Belleville springs, confined in the cast cylinders. The mortar with the trunnion carriage is instantly returned into battery by the reaction of the Belleville springs. This carriage was first obtained by purchase abroad of Messrs. Easton and Anderson, of Erith, Kent, England, but in its original form it proved to be too weak for the work required of it.

It has been found necessary to modify the working parts, although the principles involved have not been materially changed. The angle of the slides has been diminished from 60 degrees to 50 degrees. The Belleville springs have been replaced by heavier and more powerful ones, and the structure and mechanism strengthened generally in other ways.

As thus remodeled the carriage has been repeatedly tested with service charges with entire success. The recoil is taken up without too great shock on the bearing parts, and the return is instantaneous and satisfactory.

Prior to the last report of the Board, $325,000 had been appropriated for seacoast mortar carriages and $100,000 had been allotted. A contract had been let to the Builders' Iron Foundry, at Providence, R. I., for eight of these modified spring-return carriages, and one of them has since been completed and delivered.

Since the successful development of the type carriage the Board has allotted the remaining $225,000 of the appropriation, which it is now estimated will, with the previous allotment, provide for about 30 carriages, leaving 43 of the 73 mortars already contracted for to be furnished with mounts.

The act of July 23, 1892, provided for contracts to the amount of $200,000 for seacoast mortar carriages, which will not be adequate to provide for more than about one-half of the remaining 43 mortars already under contract, to say nothing of the seven new steel mortars of 12-inch caliber, authorized by the same act.

The Board recommends that adequate appropriation be at once made for seacoast mortar carriages so that the work of mounting may keep pace with the production of the mortars.

The Canet carriage (experimental), made principally of steel at the works of Sir Joseph Whitworth & Co., Manchester, England, is at the proving ground, and has been tested in part.

This experimental carriage was purchased under an allotment made by the Board for test, but in view of the greater simplicity and ease of action of the spring-return carriage, the purchase or construction of more of this type is not recommended.

ALTERATIONS OF EXISTING CARRIAGES.

The work of altering the old carriages designed for 10-inch and 15-inch smoothbore guns, so as to adapt them to mounting the 8-inch converted rifle and the 15-inch smoothbore with increased service charges, has progressed during the year, and on their recent visit to the Watertown Arsenal the Board saw a considerable number of these strengthened carriages, which might, in case of necessity, be put to a valuable use in harbor defense.

The $27,000 appropriated for increasing the facilities for this work by the act of 1891 has been expended at Watertown Arsenal, Massachusetts.

As heretofore stated, the work of providing carriages is some years in arrears of the work of gun construction, and the Board submits for careful consideration whether it would not in the end be more economical and conduce to greater independence if the Government should provide a seacoast gun and mortar carriage factory commensurate with the production of guns and mortars.

GUN-LIFT MOUNTING FOR 12-INCH GUNS.

On November 8, 1888, the Board recommended that the Chief of Engineers be requested to supply detailed plans and specifications for a gun lift, to be used in a battery, of the general type proposed by Gen. Duane to receive 12-inch high-power guns. On February 12, 1890, these plans, designed by Gen. Abbot, Corps of Engineers, were received. On February 12, 1890, an allotment of $112,550 was recommended from the funds made available by section 6 of the act approved September 22, 1888, for the construction of the mechanism and hydraulic motors for a single lift. This it was proposed should be erected in a suitable masonry battery to be constructed at Sandy Hook for exhaustive tests on a site which will render it available for the permanent defense of the port of New York.

The Chief of Ordnance prepared designs for a carriage for a 12-inch gun to conform to conditions imposed by the proposed gun-lift mounting, and on November 6, 1888, an allotment of $25,000 was recommended by the Board for the construction of this carriage from funds made available under section 3 of the act approved September 22, 1888.

Contracts were duly made by the Chief of Engineers and the Chief of Ordnance, respectively, for the construction of the gun-lift mechanism and gun carriage; the former with the Continental Iron Works, of Brooklyn, N. Y., and the latter with Schneider & Co., Creusot, France. The actual cost of the latter proved to be $19,899.25 delivered in New York. It was received in March, 1892.

The work of constructing the battery was begun at Sandy Hook in January, 1891, by Lieut. Col. G. L. Gillespie, Corps of Engineers. In October of that year the Continental Iron Works began the delivery of the gun-lift mechanism. The carriage was received and the gun mounted, so that the preliminary firing was begun on September 12, 1892. It is understood that the results were satisfactory, but that the trials were suspended to permit a slight modification of the carriage to be made; and that when this has been completed they will be resumed immediately. The formal tests in the presence of the Board will be made as soon as the Engineer and Ordnance Departments are ready for them.

TORPEDOES AND MINES.

During the past year there has been no special development in the matter of submarine mines.

The work of providing and completing shore stations and the permanent parts of the system has been continued as permitted by the condition of appropriations.

The four *Ericsson aërial subaquatic projectiles* (or torpedoes), for which the Board made an allotment of $11,333.33, have been completed

and offered for test. The Board made an allotment of $1,000 for fitting up a 16-inch gun to be used for the test, and $500 for moving and putting it in place and for other incidental expenses.

This projectile or torpedo is designed to be fired from either pneumatic or powder guns. The torpedo itself is about 27 feet long and 15 inches in diameter, and weighs about 1,200 pounds. It is designed to carry a large charge of high explosive, which is to be exploded upon impact.

It is intended to be discharged through the air, descend into the water, and passing below the surface a certain depth to be determined by the adjustment of the steering apparatus, to strike the target below the water-line.

The projectile is of a slender cigar-shape, the forward compartment being occupied by the explosive, the after part by the steering apparatus, and the middle section by the mechanism which actuates the latter.

The preparations having been made for the test of this projectile at Fort Wadsworth, New York Harbor, the trial took place March 25, 1892. The result is narrated in the official record of the Board as follows:

MARCH 25, 1892.

The Board arrived at Fort Wadsworth at 10:15 and proceeded to the place where the *Destroyer* gun was mounted on the 15-inch center pintle carriage, the emplacement being No. 5 of the South Cliff battery. The day was clear and the wind was very light and nearly from the west, blowing fitfully. The first projectile was loaded in the gun when the Board arrived. The charge was 15 pounds of spherohexagonal Q. G. powder. The point of the projectile was about 1 foot in the rear of the face of the piece. The weight of the torpedo was about 1,200 pounds and the piston 200 pounds, making the whole weight to be moved 1,400 pounds. The elevation of the gun was 5 degrees. The weight of the gun was about 12 tons. When the projectile was in its loaded position the muzzle preponderance was about 2 tons; when it was out there was a small breech preponderance. The first shot was fired at 10:49. The distance from the base-line to the point of impact was 312 yards. As the base-line was about 200 feet in rear of gun, this makes the range of the projectile about 250 yards. The axis of the projectile remained nearly tangent to the trajectory through the latter half of the course. It struck the water with what seemed to be an angle of depression of from 20 to 30 degrees. It dived cleanly under the water and was not seen again by any member of the Board. It was followed closely by the piston, which struck the water a little in the rear of the point where the projectile struck and seemed to ricochet once, the point of the second impact being in advance of the point where the projectile struck the water. The members of the Board took stations at various points whence a clear view of the gun and the points of impact could be obtained.

The second round was fired at 4:28. The charge was 20 pounds of the same powder as before, and the projectile was of the same weight as before. The elevation was 7½ degrees. The projectile made a good flight, seeming to first curve a little downward to follow the trajectory, but later to settle by the stern, so that when it struck the water it was apparently parallel to its surface. It did not disappear, but made a ricochet and fell in two or three pieces some little distance beyond. The piston followed as in the first case, but was not seen after it once struck the water. The range in this case was 548 yards. It was understood that no further experiments would be made until the Board had further communication with the company. In the meantime, however, Mr. Lassoe, the engineer of the company, was to proceed with and complete the preparations, including the rocket.

On May 3, 1892, the Recorder was directed to inform Mr. C. S. Bushnell that—

"The Board is willing to have the remaining shots with the projectiles of the company fired with whatever charges and at whatever elevations the company may desire, within the capacity of the gun, and it is requested that the company inform the Board with what elevation and with what charges the remaining projectiles shall be fired, and at what date the company will be prepared to continue the test."

While it is not impossible that this projectile may be developed into a formidable engine of war for harbor defense, the tests above described seem to indicate such structural weakness and want of reliability in reaching its mark as to render it inadvisable to make further outlay in that direction. At present the two remaining torpedoes of this type have not been tested, but it is expected that they will be in the near future.

Another torpedo which has been submitted to the Board is the *Sims-Edison fish torpedo*, designed for the protection of mine fields and to act offensively against ships of war. It is actuated by electricity and controllable from the shore.

This torpedo, in shape not unlike the last, is about 33 feet long, and weighs about 3,800 pounds. The torpedo or boat is suspended about 4 feet under water by a float or hollow shell of copper, with which it is connected by strong iron braces. It is designed to be launched from a protected shore station, which contains the dynamos and engine, and is designed to carry 11,000 feet of electric cable and 450 pounds of high explosive. The boat is propelled by a screw, actuated by the electric current, and is required by the contract to make a speed of 18 miles per hour, turn to the right or left within a radius of 300 feet, strike a floating spar at full speed and dive under it, and proceed on its course uninjured for its practical uses.

This weapon has been a number of years in process of development, and during the past summer was submitted to the official test at the engineer station at Willets Point, New York, and presented to the Board with a request for acceptance.

From the reports of the test of this torpedo it appears that it has made more than the required speed; it has shown itself capable of being directed from the shore station, but in the very important item of diving under a protecting spar or boom and proceeding on its course, it has not fulfilled the conditions of the contract, and further tests have been recommended. The performance of the engine, boiler, and dynamos has been so satisfactory that the Board has recommended acceptance and payment for the same, which has been directed.

The chief utility of this torpedo would be in protecting mine areas and the passage of narrow entrances, and for this purpose, when fully developed and strengthened, it may become a valuable adjunct to shore batteries.

RAPID-FIRE GUNS.

Since the last report the *Armstrong type rapid-fire gun*, 4.72-inch caliber, has been received at the proving ground, placed in position, and subjected to preliminary firing for test of ammunition and of the mechanism of the gun and its balance-pillar mount.

The Board has recommended a program for the test of this as well as of the other rapid-fire guns (the Canet and the Hotchkiss) contracted for but not yet received.

These guns are designed for the protection of submarine mine fields and for flanking shore batteries, and it is expected that within a few months their tests may be completed and one or more of the types selected for service. The action of the Board relative to their employment and test is as follows:

JANUARY 22, 1892.

"The Board resumed consideration of a letter of the Chief of Ordnance of December 16, 1891, announcing the arrival of the Armstrong rapid-fire gun at Sandy Hook, and his letter of January 18, 1892, requesting that a program be furnished of the tests deemed necessary for the rapid-fire guns ordered from abroad.

Small modern guns are required for two distinct objects in the defense of the coast. One of these is the general and the local flanking of the approaches to the batteries. For this duty mobility is essential, and machine guns, field artillery, and rapid-fire guns not exceeding 6-pounders will be applicable. Guns for this object are not here considered.

The second object is the protection of the mine fields and coöperation with the smaller guns in repelling parties approaching to land. With a view to determining an armament suited to this purpose the three types of 4.72-inch guns have been ordered. They are too heavy to admit of rapid change of position. In order to decide upon the number of such guns which will be required to defend a given channel, and upon the relative merits of the three types, the character of the service demanded must be considered.

Such guns will contend against small unarmored boats, or against small boats with light armor, engaged, perhaps, at considerable distances in countermining by night or by day. Shrapnel and canister will be most effective against the former and strong shell against the latter. To repel landing parties shrapnel and canister will be used.

In the preliminary examination of the guns attention should be given to the following: The mechanical construction; the facility and rapidity of dismounting and reassembling; the number of parts; simplicity of parts and of general construction; strength of parts; ease of manufacture; the facility of loading and extracting the ammunition; effect of dust, dirt, and rust on working mechanism.

The firing tests should cover the following points:

(1) Rapidity of unaimed fire. This will reveal the mechanical merits and demerits of the different systems.

(2) Rapidity and accuracy of aimed fire. This may be determined by firing alternately at two or more different targets situated at different distances from the gun.

(3) Rapidity and accuracy of these guns against small boats in motion. This will require practice at a target towed across the field at ranges varying from about 500 yards to about 2,000 yards and at a speed of about 6 miles an hour.

(4) The efficiency of the kinds of ammunition furnished, including the effect of shrapnel and canister upon steel plates about an inch thick.

(5) The endurance of the gun and of its different parts.

The Hotchkiss and Canet guns are so mounted as to permit of a ready change of site during these tests, while the Armstrong mounting is not easily shifted; but as a disappearing carriage will be demanded by the requirements of actual service the Armstrong system should receive special attention.

If the examination and the tests under the first and second headings indicate no marked superiority of the Hotchkiss and Canet rapid-fire systems over that of the Armstrong, the trials against a moving target may be restricted to the latter. This may lessen the difficulty of selecting sites which will not interfere with heavy gun practice at the proving ground.

It is not the intention of the Board that each gun and its ammunition shall be tested thoroughly, but that only the system found to be the best shall be so tested.

The foregoing is laid down merely as an aid to the Chief of Ordnance, it being the desire of the Board that he should adopt such a program as, in his judgment, will lead in the best manner to the settlement of the important question under consideration."

The *Hotchkiss and the Driggs-Schroeder* 6-pounder rapid-fire guns are in position at the proving ground at Sandy Hook, and will be ready for test as soon as suitable ammunition can be obtained for the former.

HIGH EXPLOSIVES.

The subject of high explosives, especially as charges for shells to be fired from powder guns and mortars, has received much attention from the Board. A committee consisting of Gen. Abbot and Col. Mordecai, until the latter was relieved by Maj. Comly in January last, has been charged with a series of investigations and experiments in this direction, and attention is invited to their report given below. The trials at Sandy Hook were conducted by the Ordnance Department.

Although it would be premature at present to formulate definite conclusions, it may be stated that the trials with "Emmensite" and with wet guncotton packed with carnauba wax and paraffine both promise well, and that it is hoped during the coming season to demonstrate

that explosives much more powerful than gunpowder may be fired with safety from mortars and, perhaps, from modern high-power guns. Such a result will be far-reaching in its influence upon coast-defense methods of to-day.

NEW YORK CITY, *October 31, 1892.*

GENERAL: The committee on high explosives has the honor to submit the following report upon its work accomplished during the past year:

In January, 1892, Maj. Comly relieved Col. Mordecai as a member of the committee. The necessary firing from guns has been conducted under the direction of the Chief of Ordnance by Capt. Heath, in charge of the ordnance proving ground at Sandy Hook, to whom the committee is indebted for much valuable assistance.

The following extracts from the program adopted by the Board for these investigations are quoted from the last annual report for convenience of reference:

"(1) *Which is the best explosive for use in shells?*—To decide this point we must consider, (*a*) safety in handling and storage, regard being had to ordinary shocks and friction in handling, to deterioration in store, and to extremes of heat and cold; (*b*) intensity of action when exploded; and (*c*) density of loading. Should the trials prove that several varieties of high explosives can be safely fired in projectiles, the ultimate choice between them will depend on these considerations; and they should also largely influence the order in which trials are made. * * *

"(2) *Is an explosion of the first order or detonation assured with the different modes of loading proposed by the inventors to prevent premature explosion?*—To test this matter it is proposed to explode duplicate sets of cast-iron shells like those shown on page 229, Report of the Chief of Ordnance for 1884 (caliber, 8-inch; cavity, 5 inches in diameter and 10 inches deep; capacity, about 192 cubic inches, or 6.9 pounds of water). One set will be charged precisely as proposed by the inventor; the other will contain the same amount of the explosive in a compact mass, with the rest of the cavity sand-filled. The projectiles will be placed at the bottom of holes about 8 inches in diameter and 4 or 5 feet deep, bored in uniform clay soil and tamped with sand. From the measured crater radii after the explosion it is believed that a fair idea can be formed as to whether the loading devices reduce the order of the explosion. * * *

"(3) *Will the explosive stand the friction due to rifled motion when loaded as proposed?*—To obtain more definite information as to the heating effect of this motion than is now available, it is proposed to communicate a high rotary velocity to projectiles by mechanical means, and thus to investigate the subject practically. * * *

"(4) *Will the explosive stand the shock of firing when loaded as proposed by the different inventors?*—To test this matter it is proposed to purchase one hundred 7-inch and fifty 11-inch projectiles of the pattern described above, and to fire them from the 7-inch Ames gun and from the 11-inch converted muzzle-loading rifle at Sandy Hook. All these experiments should be made by firing at long ranges over water, so that a practical test of the effect of rifled motion as well as the shock of firing may be had.

"(5) *Will the igniting mechanism stand the shock of firing and the rifled motion without premature action?*—This matter should be tested quite independently of the explosive, which may be accomplished by using shells charged with powder in a field or siege gun, or perhaps by charging several primers in one shell, thus reducing expense.

"(6) *Will the igniting mechanism act as desired?*—This may be tested by firing shells charged with powder.

"(7) *Will the shell, without the igniting mechanism, explode on impact (a) with water; (b) with earth; (c) with stone; (d) with wood or light iron; and (e) with iron armor?*—Information on some of these points will be obtained incidentally, and the others may be left for future consideration."

The progress made in carrying this program into execution during the seasons of 1890 and 1891 is set forth in the annual report of your committee dated October 12, 1891, and published as Appendix E of the last Annual Report of the Board of Ordnance and Fortification. The following summary gives the operations during the season just closed:

SUBTERRA SHELL TRIALS.

The methods used under headings (1) and (2) of the program have been those fully described in Appendix E of the last annual report of the Board, so that no further explanations appear to be required here. It should be noted, however, that the lot of shells used this year was slightly modified as to interior form and capacity, the latter being 186 cubic inches instead of 192 cubic inches as heretofore. The results for density of loading, given below, have been corrected accordingly, thus reducing them to the original standard. Trials have been made as follows:

AMERICANITE.

Two samples differing in composition were tested. The first contained about 75 per cent of Americanite fluid, absorbed by 25 per cent of a base consisting wholly of wood pulp. In color the explosive was an earthy gray, and in packing it showed more elasticity than ordinary dynamite. An alcoholic odor was perceptible when the packing box was opened. The latter was of wood with an inner tin box, of which the cover was closely fitted, but by no means sufficiently so to hermetically seal the interior. In charging the shell the Americanite was closely compacted by pressure and ramming with a wooden stick. It was not so dense and so easily consolidated as dynamite, being distinctly elastic. The detonator was of the pattern used in all hese trials, being that adopted for our submarine mining service. It contained 24 grains of mercuric fulminate, and was embedded about 2 inches in the explosive.

Three shells were fired by electricity; the charges being, respectively, 6.94 pounds, 6.94 pounds, and 7.94 pounds. The measured lines of least resistance were 4.65 feet, 3.50 feet, and 3.55 feet; and the measured mean crater radii 2.81 feet, 3.26 feet, and 4.32 feet. Our experimental formula indicates that these craters would have been produced, respectively, by 1.65 pounds, 2.29 pounds, and 4.42 pounds of explosive gelatine; giving for the relative intensity of this grade of Americanite, as compared with explosive gelatine, 24 per cent, 33 per cent, and 56 per cent, making a mean of 38 per cent. The large differences in these separate determinations suggest unusual variations in intensity in the different charges of this grade of Americanite.

To determine the rate at which, under ordinary exposure, evaporation, with its attendant danger of the liberation of free nitroglycerine, may be anticipated with this explosive, 4.910 grams were accurately weighed on August 4, 1892, and left open to the air in the laboratory. In 18 days the sample had lost 1.6 per cent of its weight, in 36 days 1.9 per cent, and in 81 days 3.1 per cent. These records show that hermetical sealing would be a necessity to avoid danger of accidents with this explosive.

The company submitted another sample of their explosive, which was tested with the following results. It contained 85 per cent of the Americanite fluid and 15 per cent of a base consisting of wood pulp, soapstone, and magnesia. The alcoholic odor was the same as before, but in appearance this variety was a heavy paste admitting of close compression in the shell. It was delivered packed in the same manner as before. Certain small spots in the mass were bright blue in color. Some of these detonated readily under the hammer while others did not. A paper which had contained samples of these spots for a few hours was found to be saturated with free nitroglycerine. Since the sample was apparently not in a stable condition, what remaied after the trials was destroyed as unsafe for storage in the magazine.

Three shells were fired as before, the charges being 11 pounds, 11.2 pounds, and 11.2 pounds, respectively. The measured lines of least resistance were 4.65 feet, 4.7 feet, and 4.7 feet, and the measured crater radii were 4.27 feet, 4.34 feet, and 4.69 feet, respectively. The formula indicates that these craters would have been produced, respectively, by 4.74 pounds, 4.94 pounds, and 6.07 pounds of explosive gelatine, giving for the relative intensity of this grade of Americanite as compared with explosive gelatine, 43, 44, and 54 per cent, making a mean of 47 per cent. This grade, therefore, appears to be more uniform than that first tested.

The relative merit of different high explosive as charges for shells may be estimated by their earth-lifting power when forming craters in earthen parapets. This power is measured by the product of their intensities, determined as above, by their density of loading. The latter may be relatively determined from the weight which can be charged in the standard shell (capacity, 192 cubic inches). Increasing the weights actually inserted in the shells this year in the ratio of 186 to 192, gives 7.5 pounds and 11.5 pounds as these weights for the first and second grades of Americanite tested by us. Hence the relative merits of these two grades are represented by the products—

75 per cent grade.....	$0.38 \times 7.5 = 2.90$
85 per cent grade.....	$0.47 \times 11.5 = 5.42$

The corresponding figures of merit for other high explosives which are now prominent competitors as charges for shells were given in our last annual report as follows:

Explosive gelatine	$1.00 \times 10 = 10.00$
Rackarock	$0.78 \times 12 = 9.36$
Emmensite.....	$0.56 \times 9.8 = 5.49$
Gun cotton.....	$0.51 \times 6.2 = 3.16$
United States rifle powder.....	$0.23 \times 7.5 = 1.72$

The physical characteristics above reported demonstrate that the 85 per cent grade of Americanite is unfit for the military service; and that the 75 per cent grade

is inferior in merit to several of its competitors, as set forth in these figures. The committee therefore does not recommend further trials with this explosive.

AMMONITE.

This explosive consists of 90 per cent of ammonium nitrate and 10 per cent of mono-nitro-naphthaline. In a modified form it was presented by Mr. Harry Allen for trial. His preparation was a fine powder having a pale sulphur tint. Being highly deliquescent, it was supplied in small lead cases hermetically sealed. It admitted of being readily compacted into a dense mass by ramming.

Three shells were loaded in the usual manner for subterra trials, but as the explosive was known to require a powerful detonation to fully develop its energy, two detonators of the pattern used in our submarine mining service, and containing together 48 grains of mercuric fulminate, were inserted a couple of inches in the compacted mass.

On passing the electric current through the first shell, buried in the usual manner, no visible or audible effect was produced, but the electric circuit was found to be broken. An attempt to raise the shell failed at the time; but when dug up on the following day it was found that both detonators had exploded, forming a semiellipsoidal cavity $2\frac{1}{2}$ inches in diameter at the top and $3\frac{1}{4}$ inches deep in the solid mass of the charge.

The second shell, loaded in like manner, also failed to explode; but being successfully raised from the hole and opened the facts became known that both detonators had exploded and formed a semiellipsoidal crater $2\frac{1}{2}$ inches in diameter at the top and $2\frac{3}{4}$ inches deep. The cavity remained open, the surface being slightly discolored by the exploded fulminate. Three detonators banded together, and containing in all 72 grains of mercuric fulminate, were placed in this cavity; the edges were crumbled and pressed down upon them, and the shell was closed and again buried so that the center of the charge (7.5 pounds) was 3.6 feet below the surface of the ground. On passing the electric current a jar was felt, the sand tamping was blown from the hole, and a dense smoke poured out for five or six minutes. Subsequent excavation showed that a partial explosion had occurred, shattering the shell near where the detonators had been placed, but leaving the lower third unfractured. Portions of the unexploded charge were distributed in the neighboring sand, and 1.9 pounds were recovered. The blast had enlarged the lowering hole from a diameter of 8 inches to 12 inches; and a cavity 29 inches in diameter by 19 inches in height had been formed at the seat of the explosion.

The third shell had received a charge of 7 pounds 9 ounces of the explosive, closely compacted. The top was repulverized to a depth of 6 inches, compelling the removal of 4 ounces; three detonators banded together as before were buried in the loosened part, and the shell was closed, the charge now being 7.3 pounds. It was buried and exploded normally, giving a measured line of least resistance of 3.7 feet and a measured mean crater radius of 3.81 feet. The experimental formula indicates that this crater would be formed by a charge of 3.23 pounds of explosive gelatine, giving 44 per cent as the relative strength of this grade of ammonite. This figure, being based on only one experiment, is held subject to verification, and the trials would have been continued and completed this season had not Mr. Allen requested a temporary suspension of them.

ROTATION TRIALS.

Mechanism by means of which a shell packed with the explosive to be tested could be given a rotation comparable with that of a rifle projectile in its flight long received the attention of your committee. The conditions to be fulfilled were not simple. Since explosion might occur, the apparatus and operators must be protected against flying fragments. Since the concussion of the air in the close vicinity of the explosion of any charge large enough to afford satisfactory tests would be deafening, no ordinary speed indicator attached to the revolving axis could be observed; and hence arrangements for keeping the record electrically on a chronograph at a considerable distance were indispensable. The control of the motor must also be regulated from a secure position.

After giving the problem much study, your committee, in April, 1891, visited the works of the Hotchkiss Ordnance Company, at Providence, R. I., where the mechanism used in rotating the fly wheel of the Howell torpedo is fabricated. After consultation with the company, a construction was designed which has proved to be perfectly successful and which was delivered in a few months at Sandy Hook. Capt. Heath, in charge of the proving ground, mounted it with admirably good judgment, so that an old armor plate, through which the axis of revolution passed, protected the motor mechanism, while a natural sand mound in rear afforded cover for the

steam boiler, chronograph, and operators at a safe distance from the shell. Col. King loaned a chronograph outfit from the engineer depot at Willets Point. After some preliminary trials and the correction of a few defects naturally to be expected in mechanism working under such disadvantages, everything was ready to begin experiments in the spring of 1892; but as high atmospheric temperatures were necessary to make the trials wholly satisfactory, work was deferred until summer. They were then made successfully on days when the temperature ranged between 76° F. and 97° F., under the skillful superintendence of Lieut. Wheeler, Ordnance Department, and in the presence of your committee.

The explosives were compacted as solidly as practicable in shells, some of which had cylindrical cavities 7.5 inches in diameter and 7.5 inches long, while others were octagonal in cross-section, but of similar capacity.

It was well understood that no mechanical rotation of a shell starting from rest can approximate in suddenness to the rotational shock which a projectile receives when fired from a rifled gun. Several seconds must elapse before the full velocity of rotation can be given mechanically; but shells containing high explosives, and even gunpowder, have been known to explode in the air after having traversed long distances from the gun. Such explosions have been usually attributed to the heat generated by friction among the particles, especially among those near the walls of the cavity when rough; and Mr. Parrott, many years ago, succeeded in preventing them from gunpowder charges by applying a lubricating wash to the rough interior of his cast-iron shells. Rotational experiments like those under consideration, conducted with different high explosives, should detect any special susceptibility to explosion due to this kind of friction among the particles.

As to the absolute rotational velocity of rifled projectiles, it may be noted that for the very important class of mortar shells carrying large charges the initial velocity of translation will not exceed about 1,200 feet per second, corresponding, with the usual pitch of the rifling, to about 3,000 turns per minute continued for a period not exceeding about fifty seconds. The desirable range for experiment extends from this figure up to about 5,000 turns.

Experiments were made first with a charge of 16.1 pounds of explosive gelatine containing 4 per cent of camphor, packed in a shell having an octagonal cavity, and fitted with four longitudinal diaphragms like those used in the subterra experiments of last season. Two runs were made, but the friction of the bearings prevented a speed exceeding about 2,000 turns per minute being attained. This speed was reached in about twenty-five seconds and was twice maintained, once for thirty-five and once for fifty-five seconds. On opening the shell the contents were found to be wholly undisturbed.

The next run was made with a charge of 9.3 pounds of Walsrode wet guncotton packed with 5.1 pounds of half-and-half mixture of carnauba wax and paraffine, in a shell having an octagonal cavity. A speed of 3,000 turns per minute was reached in twenty-three seconds and was maintained for sixty seconds, during which it rapidly increased to 3,700, and finally reached 4,300 turns. On opening the shell the contents were found quite undisturbed, only a few hair-cracks appearing on the surface.

The next run was made with a charge of 17.7 pounds of emmensite solidly packed in a shell having a cylindrical cavity. A speed of 3,000 turns per minute was reached in twenty-two seconds and was maintained for thirty seconds, increasing during this period to a maximum of 4,000 turns. On opening the shell a circular depression, or cavity, was found at the end about 4.5 inches in diameter and 1.5 inches deep. The contents had evidently been powerfully disturbed, but without causing explosion.

The next run was made with a charge of 14.9 pounds of the modified ammonite presented by Mr. Allen, rammed as solidly as possible in a shell having a cylindrical cavity. A speed of 3,000 turns per minute was reached in seventeen seconds and was maintained for ninety seconds, reaching during that period a maximum of 4,800 turns. On opening the shell it was found that a central cylindrical hole of 1.1 inches in diameter extended throughout the entire axis, opening into a cone 3 inches high and 3.5 inches at the base, which latter coincided with the plugged end of the shell. The outer surface of the explosive was slightly discolored by rubbing against the iron at this end. Evidently the charge had been subjected to marked disturbance, but without producing explosion.

The next run was made with a charge of 22.3 pounds of rackarock, which had been mixed for about a year. It had been stored, however, in a rubber-sealed box to prevent any evaporation of the dinitro-benzole. The shell had an octagonal interior cavity. A speed of 3,000 turns per minute was reached in thirty-four seconds and was maintained fifty-seven seconds, reaching a maximum during that period of 3,800 turns per minute. After the experiment had ceased a strong odor of dinitro-benzole pervaded the vicinity. There was no appearance of fluid around the plug of the shell, but a few spots on the stand might possibly be due to some which had been thrown out. This, however, is doubtful. Upon opening the shell an axial cavity was found at one end 2 inches in diameter and 1.4 inches deep. A similar cone was found at the

other end 1.4 inches in diameter and 2.7 inches deep. These were connected by a loosely filled cylindrical space through which a wire could be easily thrust, while in other parts the charge was too solidly packed to be thus penetrated. Here, too, marked disturbance of the charge had occurred, without inducing explosion.

The last run was made with a shell having a cylindrical cavity completely filled with 12.8 pounds of explosive gelatine, containing 4 per cent of camphor, with the interstices filled by 5.7 pounds of Mr. Stevens' packing. A speed of 3,000 turns per minute was reached in thirteen seconds and was maintained for one hundred and thirty-five seconds, during which period it rapidly increased until a speed of about 8,000 turns per minute was reached. For about forty seconds the speed exceeded 7,000 turns. This trial, therefore, was exceptionally severe. The excessive speed was not intended, but was probably caused by less friction than heretofore in the bearings. On opening the shell the contents at the end showed no cavity, although a few hair-cracks appeared. It was found, however, by probing with a wire, that a tendency to a cylindrical opening around the axis had existed, as the charge was distinctly disturbed in that vicinity. That no explosion occurred demonstrated that there is little to be feared from internal friction with a charge of this character.

In fine, we may conclude from these trials that none of the explosives tested exhibit a dangerous susceptibility to this kind of internal disturbance.

SHOCK IN THE GUN.

To enable us to continue these investigations under the fourth heading of the general program, the Chief of Ordnance has supplied a rifled 7-inch M. L. Ames gun and a rifled 11-inch M. L. gun converted from a 15-inch S. B. Rodman gun. Also a 12.2-inch B. L. rifled mortar of cast-iron, hooped with steel, of general design of that adopted for service.

The firing has been conducted at the ordnance proving ground at Sandy Hook, under the direction of the Ordnance Department and in the presence of one or both members of your committee.

The program calls for the trial, in shells fired from these guns, successively, of such explosives as have passed the preceding requirements.

The Emmensite was successfully fired from the 7-inch Ames gun in July, 1891, as reported in Appendix E of the last annual report of the Board. The trials were continued early last winter, using the 11-inch converted rifle. Ten shells were fired without fuses over the water range, the propelling charge being 125 pounds of DuPont's hexagonal K. A. A., giving a muzzle velocity slightly exceeding 1,400 feet per second. The elevation was 11 degrees, the time of flight about 16 seconds, and the pressure in the bore about 25,000 pounds. The charges of Emmensite were varied from 26 pounds, closely compacted, to 16 pounds loosely filling the cavity, to determine whether density of loading affected the result. This test was successfully passed, no explosion occurring. The trial of Emmensite in the 12.2-inch mortar has thus far been delayed by the nonreceipt of the projectiles ordered for the purpose, which are designed to contain a full charge of 100 pounds. Their early delivery is now expected.

In August, 1892, five shells charged with Walsrode wet guncotton packed with a half-and-half mixture of carnauba wax and paraffine were fired over the water range from the 7-inch Ames gun, with propelling charges of 25 pounds of DuPont's hexagonal E. V. K. powder, giving a muzzle velocity of slightly exceeding 1,400 feet per second. The elevation was 11 degrees; the time of flight was about 16 seconds; the pressure in the bore was not measured. Each shell contained 4.1 pounds of wet guncotton, 1 pound of carnauba wax, and 1 pound of paraffine, the total weight being 134 pounds. No fuses were used and no explosion occurred. The trials were continued with the same explosive in the 11-inch converted rifle, five shots being successfully fired without explosion. The propelling charge at first was 120 pounds of DuPont's hexagonal E. V. K. powder, giving a velocity of 1,435 feet per second, but the corresponding pressure in the bore proving to be 38,745 pounds, the charge was reduced to 115 pounds, which gave about 1,400 feet per second velocity with 33,000 pounds pressure. Each shell contained 12.5 pounds of wet guncotton, packed with 4 pounds of carnauba wax and four pounds of paraffine, making the entire weight about 470 pounds. The elevation was 11 degrees, and the time of flight 15 seconds. No explosion occurred.

The next trial was with shell charged with explosive gelatine, containing 4 per cent of camphor, fired from the 7-inch Ames rifle, with a propelling charge of 25 pounds of DuPont's hexagonal E. V. K. powder, giving a muzzle velocity slightly exceeding 1,400 feet per second. The elevation was 11 degrees, the firing being over the water range without fuses. The explosive gelatine was contained in cast-steel shell with octagonal cavities, fitted with longitudinal and transverse diaphragms similar to those tested in subterra trials last season. but with the diaphragms accidentally reversed in loading. The charge of explosive gelatine was 6.1 pounds, the

entire weight of projectile being 134 pounds. The following description of these diaphragms, and of the results of two trials with them, are quoted from Capt. Heath's official record of firing:

"Three sets of longitudinal diaphragms, two 4 inches long and one (nearest the base) 2 inches long, separated by transverse diaphragms, each pierced by 23 holes one-eighth inch diameter; each set of longitudinal diaphragms consisting of two parts set at right angles; diaphragms of No. 16 galvanized iron; space of 2 inches in rear of longitudinal diaphragm; all interior space compactly filled with explosive gelatine."

At the first shot "the sound of discharge was unusual, and fragments of shell struck at various distances along the beach; but the gun was apparently uninjured (though the bore was not critically examined) and it was impossible to assign the cause with certainty."

At the second shot "the sound of discharge was the same as for last round, and fragments struck along the beach as before; longitudinal crack, 5 inches long, in rear of right trunnion; both trunnions loosened in their attachment to the gun.

"An examination of the bore with a candle revealed three very marked circumferential cracks at 13 inches, 19 inches, and 50 inches from the muzzle; bore very badly battered and scored its whole length; water being poured in bore to clean it out, leaked through joint of left trunnion. There was a marked bulge at the seat of shell, and the surface of bore at this point was so badly battered as to make the lands almost undistinguishable in places, so that it was apparent that the shell exploded at or very near its seat.

"The circumstances of discharge being the same for the previous round, the conclusion is warrantable that the previous shell was exploded in the same manner.

"The gun is ruined."

This completes the trials thus far had with shells charged with high explosives and fired from guns, which have formed part of the regular series during the past year.

Notwithstanding the accidental inversion of the diaphragm in the last two trials, it would appear, in view of the small mass of explosive gelatine used, that the expense of further experiment with that explosive, subdivided by such diaphragms, is not warranted by the results obtained.

Some additional firing was conducted by the Chief of Ordnance at Sandy Hook to test the modified Ammonite submitted by Mr. Allen as a charge for shells, and the report of the results has been furnished for the information of the Board. To complete our records, the following abstract of them is given:

The gun used was a 9-pounder (2.75-inch) Armstrong, furnished by Mr. Allen. The propelling charge was 1.5 pounds of DuPont's sphero-hexagonal powder, giving a muzzle velocity of about 1,370 feet. The charge of the shell (cast iron) varied between 5 ounces and 8 ounces; it was compactly rammed, with no provision against shock or against friction, except to give the surface of the cavity a hard polished coat of shellac or other similar substance. When fuses were used they were of the Armstrong time and percussion pattern (point) so arranged as to communicate fire to a copper detonator containing 31 grains of mercuric fulminate and held by a rubber collar in a tube, with a small amount of the explosive in a loose condition. This tube, 3 inches long, extended nearly to the middle of the shell cavity.

In all 22 shell thus loaded were fired from the gun, with varying elevations, ranging up to 7.5 degrees. Of these 13 contained no fuses; 9 of them were fired to sea; 1 down the beach; 1 through a half-inch wrought-iron plate, backed by sand, at a range of 400 yards; 2 against a 4-inch wrought-iron plate at a range of 65 feet. None exploded except the last two, which did so after making an indentation one-eighth of an inch deep in the plate. Of the 9 containing time and percussion fuses, 4 were fired over the water, of which 2 exploded in 2 seconds and 3 seconds, respectively; 1 set for 2.5 seconds exploded on impact at 6 seconds, and 1 set for 1.5 seconds failed to explode, although it struck water twice, the last time at 4.5 seconds; 4 were fired over land, of which 3 exploded on ordinary impact and 1 in traversing a wrought-iron plate one half an inch thick; 1 shell broke up in the gun.

Upon the invitation of Dr. J. D. Justin and in company with other members of the Board the committee on high explosives witnessed an exhibition of his system of firing high explosives from powder guns at his range near Syracuse, N. Y., on June 20, 1892. Nothing need be said here about these very interesting experiments, as the details are fully given elsewhere in this report, to which attention is invited.

IGNITING MECHANISM.

As no fuses suitable for causing the explosion of charges of high explosives in shells have yet been submitted by inventors or procured abroad, no experiments under headings 5 and 6 of the program have been possible. The time has now come when such trials should no longer be delayed, and the committee recommends that

the Chief of Ordnance be requested to cause samples to be designed and fabricated for this special purpose at the Government factories with the least possible loss of time.

RECAPITULATIONS AND RECOMMENDATIONS.

The several varieties of high explosives and modes of packing them in shells thus far submitted to the Board have been tested by subterra trials, by the rotating machine, and by examination of their physical properties with the following additional results not already stated in the last annual report of your committee:

(1) That the Stevens method of packing causes a sensible loss of explosive intensity, ranging from 22 per cent when freshly loaded to 11 per cent when fully hardened, and entails objectionable rusting when the shells are stored loaded. Hence, although the system has successfully borne the test of the rotating machine, it would seem to be so unsuited to the military service that the question is a serious one whether the risk and expense of further trials by firing shells charged with explosives in this manner from guns should be incurred.

(2) That Emmensite has borne successfully all preliminary trials in subterra shells, on the rotating machine, and in 7-inch and 11-inch rifled guns up to shell charges of 26 pounds, with muzzle velocities of 1,400 feet per second and pressures of 25,000 pounds. The trials in the 12.2-inch mortar with shell charges of 100 pounds and full service velocities and pressures will be made at the earliest practicable date, and if successful will warrant the adoption of this explosive as suitable for use in the new 12-inch mortar. It may be added that its figure of merit is superior to that of wet guncotton.

(3) That wet guncotton with the interstices filled with a half-and-half mixture of carnauba wax and paraffine has borne successfully all preliminary trials in subterra shells, on the rotating machine, and in 7-inch and 11-inch rifled guns up to shell charges of 12.5 pounds, with muzzle velocities of 1,450 feet per second, and pressures of 38,000 pounds. The trials in the 12.2-inch mortar should be made with the least practicable delay.

(4) That rackarock, mixed, has borne successfully all preliminary trials in subterra shells and on the rotating machine and trials in the rifled guns should proceed in the usual order at once.

(5) That explosive gelatine has borne successfully all the preliminary trials in subterra shells, and on the rotating machine, but has failed with muzzle velocities of 1,400 feet per second in the 7-inch rifled gun when packed in shells fitted with diaphragms preventing internal rotation. The very high figure of merit of this explosive and the success obtained by Dr. Justin with his "carriers," although at comparatively low velocities and pressures, will warrant further experiments in this direction; and your committee therefore recommends that ten shell fitted upon his system, but without fuses, be procured and fired from the 7-inch Ames rifled gun, and, if successful, that the trials be continued in the usual order.

(6) That the Americanite in dynamite form has been shown by the subterra trials to rank lower in explosive intensity than certain other explosives superior to it in the physical properties demanded by the military service, and hence that trials with it should be discontinued.

(7) That trials with ammonite have not proceeded far enough to warrant a decided opinion as to its merits; and that they be continued further, in the usual order, if desired by the party submitting that explosive.

The following program is suggested for the continuation of these trials in the early future.

With subterra shells.—Such tests as may be needed from time to time to determine the merits of any new explosive, or new modes of charging which may be approved for trial by the Board.

With the rotating machine.—Such trials as may be needed from time to time to determine whether danger of premature explosion is to be apprehended from the internal friction caused by the rifling, when shells charged with such new explosives as may be approved for trial by the Board are fired from powder guns.

With the 7-inch muzzle-loading rifle.—(*a*) Ten shells charged with rackarock mixed. Firing to be over water with propelling charges of 25 pounds of Du Pont's hexagonal E. V. K. powder, or its equivalent, with an elevation of 11 degrees, and without a fuze. (*b*) Ten shells upon Dr. Justin's system, but without fuses, loaded with explosive gelatine containing 4 per cent of camphor. Firing to be as above. (*c*) Similar trials with any new explosive approved for trial by the Board, after it shall have passed successfully the preliminary subterra and rotation tests.

With the 11-inch muzzle-loading rifle.—Ten shells to be fired loaded with any explosive or method of charging not previously tested therein, which shall have passed successfully the test in the 7-inch rifle. Firing to be over water with propelling charges of 125 pounds of Du Pont's hexagonal K. A. A. powder, or its equivalent, with an elevation of 11 degrees and without a fuze.

With the 12.2-inch rifled mortar.—(*a*) Ten shells to be fired charged with Emmensite. Firing to be over water without a fuze, with full service charges, and with such elevations as may be most convenient. (*b*) Ten shells to be fired charged with wet guncotton, packed with a half-and-half mixture of carnauba wax and paraffine. Firing to be as above. (*c*) Ten shells to be fired charged with any other explosive or mode of loading not previously tested therein, which shall have passed successfully the test in the 11-inch rifle. Firing to be as above.

Fuses for shells charged with high explosives.—The trials indicated in the program approved by the Board to be made as soon as samples can be obtained.

In the conduct of all these experiments discretion must be used in making a greater or less number of trials without too rigid an adherence to the general program.

SMOKELESS POWDERS.

The large quantity of powder consumed by modern guns, and especially by guns of the rapid-fire type, renders it almost imperative that these guns shall be served with powder of the smokeless variety, on account of the well-known advantages with respect to ballistic results, and its desirability in order to prevent the production of so large a cloud of smoke as to obscure the field of fire and render it impossible to direct the same with accuracy.

The Board therefore has made allotments for the purchase of smokeless powders, and experiments therewith have been conducted by the Ordnance Department, not only with small arms and rapid-fire guns, but also with the 10 and 12 inch B. L. rifles.

It is believed that this most important problem in defense is approaching satisfactory solution. Ample provision should be made by appropriations for continuing these experiments upon a scale commensurate with the importance of the subject.

For a statement of the results of experiments with smokeless powders reference is made to the report of the Chief of Ordnance.

GUN AND MORTAR BATTERIES.

The work upon gun and mortar batteries has continued during the year, and, where not retarded by the want of adequate appropriations or satisfactory types of 8 and 10 inch disappearing gun carriages, has progressed favorably.

The greater value of the 12-inch gun as an engine of war warrants the expense of hydraulic gun lifts or the construction of armored casemates, where required by the site, for its protection, which is not equally true of the 8 and 10 inch guns.

BREECH-CLOSING DEVICES.

The subject of improvements in breech-closing devices has continued to engage the attention of the Board. Several designs have been submitted for its action. Some of these appear to embody meritorious features, but the Board is not satisfied that they possess any superiority over or equal in merit the service breech mechanism now produced at the Army Gun Factory.

In February last the Board recommended allotment of $1,000 for the purchase of one 3.2-inch B. L. rifle, fitted with Col. Theodore Yates's breech-mechanism, and $1,500 for the purchase of metallic ammunition for the test of the same.

Subsequently, Col. Yates informed the Board that the test of his system in a gun of so small a caliber would be wholly unsatisfactory, and it being impossible to obtain the necessary metallic cases for the larger calibers desired, on the recommendation of the Board the allotment was revoked.

PNEUMATIC DYNAMITE GUNS.

Among the objects of appropriation specified in section 3 of the act of September 22, 1888, to be expended under the supervision of the Board, provision was made "for examining, testing, and experimenting with pneumatic or other dynamite guns," etc.

No pneumatic dynamite guns have been presented to the Board for test or examination during the last year.

By the acts of 1888 and 1889 for the support of the Army, sums aggregating $587,000 were appropriated for pneumatic dynamite guns and for mounting and operating the same. The expenditure of these appropriations was not under the supervision of this Board, but inasmuch as it has had charge of the experiments with high explosives, it has deemed it proper to call attention to this subject.

So far as the Board is advised these guns are not yet constructed, although the period originally limited by contract has long since expired.

In view of the present state of development of the experiment of throwing high explosives with powder guns, as detailed in another part of this report, the Board suggests the inadvisability of keeping open this contract.

TESTING AND PROVING GUNS, MORTARS, AND CARRIAGES.

The Board calls the attention of those charged with making provision for our seacoast defenses to the great accumulation of work in the testing and proving of guns, mortars, carriages, etc.

By the close of the present year there will have been turned out not less than 33 seacoast guns of 8, 10, and 12 inch calibers.

If we consider the 8-inch to have been sufficiently tested, there will be 15 of that caliber to be proved. The test of the 10-inch B. L. rifle, ordnance type, is to be completed, and 10 of that caliber to be proved. The test of the 12-inch B. L. rifle is to be completed, and 4 of that type to be proved. The three experimental wire-wound guns—Woodbridge, Crozier, and Brown segmental—are nearly completed, and should be tested within the ensuing season. The three type 4.72-inch rapid-fire guns, as well as the two 6-pounder R. F. guns, are to be tested, as is also the ammunition for the same. The test of the all-steel mortar is to be continued and completed. The same is true of the cast-iron steel-hooped mortar. There will be 70 or more of the latter type of mortars ready to be proved as rapidly as it can be done. The 12-inch gun lift and carriage are also to be tested.

The disappearing type 8 and 10 inch gun carriages (the Gordon and the Crozier-Buffington) will doubtless be completed and tested within the year; also the 8-inch and 12-inch type barbette carriages, now nearly completed at the Watertown Carriage Factory.

There will be powders of various kinds and projectiles to be tested, including shot fired against armor plates.

In brief, the present facilities and force of the proving ground seem to the Board quite inadequate to keep up with the work of testing and proving, or to prevent it accumulating in such manner as to seriously retard the whole system of national defense.

The Board believes that liberal appropriations should be made at once to increase the facilities of the experimental proving ground, so as to keep the work of testing and proving well in hand.

GENERAL OPERATIONS.

The general operations of the Board have been as diversified as usual. Many new inventions have been examined and passed upon, and all have received careful and detailed consideration. These inventions and designs include methods of coast defense, forms of gun and mortar constructions, carriages, gun lifts, submarine-mine systems and torpedoes, range and position finders, smokeless powders, high explosives, projectiles, fuses, chronoscopes, breech mechanisms, means of distribution of small arm ammunition on the field, magazine rifles, and rapid-fire guns.

In connection with its regular meeting in June, 1892, the Board visited the Army Gun Factory at Watervliet Arsenal and various plants where forgings are being produced for the Government for gun construction, including the Midvale Steel Works at Nicetown (near Philadelphia) and the Bethlehem Iron Works at South Bethlehem, Pa. It was also present at tests of the Justin system of firing high explosives made at the range of the company near Perryville, N. Y., and the Board also visited the works of the American Projectile Company, West Lynn, Mass., and the United States Gun-Carriage Factory at Watertown Arsenal, Massachusetts.

The Board has considered the information gathered so interesting and important that it incorporates here memoranda made at the time.

MEMORANDA MADE DURING A VISIT TO MIDVALE STEEL WORKS JUNE 17, 1892.

The company have bought 32 acres lately, giving them now about 50 in all. They are actively enlarging their works and have already made much progress.

They estimate their new hammer blow at 87 tons, of which 50 tons are due to steam pressure. The frame is supported by steel ties shrunk on, the latter being under tension, making so stiff a truss that it is able to sustain a powerful steam reinforcement (50-inch cylinder 12-foot stroke) to the blow due to weight of the tup and other moving parts. The design is novel for so powerful a hammer, quite unlike others elsewhere used.

The anvil extends down about 40 feet to bed rock. The bottom layer is of brick laid in cement; on this rests a steel plate; then 350 tons of cast iron in blocks; then 60 tons of steel in blocks. This mass is tied together with four 8-inch bolts, and is surrounded by an outer casing of cement concrete.

The Board witnessed the forging of a 50,000-pound ingot for the tube of an 8-inch gun 35 calibers long. It was done under this hammer. They claim that they can forge a 170,000-pound ingot for tube of a 12-inch gun, and that in about a year they will be able to deal with a tube for a 16-inch gun.

The new steel casting shop is served with hydraulic power throughout. It contains two 30-ton open-hearth furnaces and a 40-ton crane. The drying ovens are in the middle of the shop; the molds are passed through them and come out dry.

Parts of the Buffington-Crozier disappearing gun carriage were seen, already cast, but lying idle.

The steel gun ingots are cast in 45-inch octagonal flasks, with a removable extended top lined with clay. After pouring, this top is taken off and the space is filled in with ashes to regulate the loss of heat.

The tube ingot for an 8-inch gun is the largest now made, but they are preparing deeper pits for 10-inch gun ingots. We saw an 8-inch gun-tube ingot cast.

The oil tempering pit is 70 feet deep. The oil used is a mixture of fish, cotton seed, and rape seed oil. It flashes at 700 degrees [lead melts at 675 degrees].

The furnace for heating tubes for oil tempering extends above the floor level, and is opened on one side when ready. It is heated by a system of oil jets applied at six levels in strong flames forced in nearly tangentially, so as to run around the forging. One advantage of this method is that it admits of examining the condition of the tube at any time by shutting off the supply of oil. Any lack of uniformity in heating is readily detected, and may be corrected by regulating the intensity of the flame at the different jets. We witnessed the tempering of an 8-inch tube. It had quite a uniform heat, estimated at about 1,700 degrees. The flame at the surface of the oil when the tube was immersed was small, and was quickly suppressed by steam jets. After cooling to the proper point the tube was to be annealed.

The company, in addition to ordnance forgings and castings, have a large plant employed in making railroad tires, the output being about 70,000 pounds per day; they also make many heavy forgings and castings for other civil purposes.

The numerical statements above were made by different gentlemen belonging to the works, in reply to questions, and some of them may lack precise accuracy, being given offhand. The Board was treated with perfect frankness and hospitality, and was afforded exceptional facilities for seeing the works.

MEMORANDA RELATIVE TO VISIT TO BETHLEHEM STEEL WORKS, JUNE 18, 1892.

The company employs about 5,000 hands; has 6 blast furnaces now at work, producing 3,000 to 4,000 tons of pig per week; and continues the enormous business in steel rails and other commercial products in which it was engaged before the recent extension in gun and armor production was undertaken. Foreign ores are chiefly used, although use is made of home ore, especially the Edison Jersey product. Delivered at the works Cuban ores cost about $4.50 per ton as compared with $6 for the Lake Superior product. An investment of between $4,000,000 and $5,000,000 has been made in gun and armor plant, chiefly on Government account, although good use is made of the steel-producing plant for shafts and other heavy forgings for the trade.

The shops have been much extended, and work in this direction is still in progress. It has chiefly been executed during the last two or three years. The site contains about 140 acres.

The walls of these shops are of iron, with brick filling, making a cheap and serviceable construction. They are provided with roof lighting on the side and the top of the ventilators. The iron uprights of the frame rest on piers 18 feet 4 inches from center to center. The tops of the piers rise above the surface of the ground, and the brick filling rests on two rails laid on them so that pipes can be introduced at any desired place without cutting through the masonry.

We witnessed the forging of a tube of a 10-inch gun on a mandrel. The block weighed about 25,000 pounds, and was cut in a lathe from an ingot weighing 67,000 pounds. This was done on the smaller of the two presses described below. In this shop are 80 and 40 ton overhead cranes.

They have one 10 and one 20 ton, and two 35 to 40 ton ordinary open-hearth furnaces (no Pernot furnace). We witnessed the casting of an ingot to form the tube of a 10-inch gun under fluid compression. The molten steel was run in a car over the mold and discharged into it. The ingot was 16 feet long, 38 inches in diameter at top, and 42 inches at bottom. It was compressed 22 inches. The ram was 66 inches in diameter, with a mean pressure of 2,150 pounds per square inch, aggregating about 7,300,000 pounds. The pressure was applied very gradually, and there was less appearance of flame than in similar operations abroad.

They have two forging presses, one 25 inches and the other 36 inches in diameter of ram. Their capacity is about 2,000 and 6,000 tons, but they are worked usually to about 1,500 and 4,000 tons respectively. We witnessed the forging of the ingot for the jacket of a 13-inch Navy gun on the larger of these presses. It was done on a mandrel. The temperature of the steel was said to be about 3,500°. In one heat, part of the ingot to be used was reduced from a diameter of about 90 inches to a diameter of about 60 inches.

We witnessed the tempering of a tube of a 10-inch gun. The heating furnace rises wholly above the ground, and can serve a tube 70 feet long. It was heated at six different levels, with ten jets of flame each. The tube is lifted up over the top and submerged in the oil tank, which also rises above the floor. All worked smoothly, with but little flame.

There is a 100 ton overhead crane in this shop. We witnessed the tempering of a curved armor plate for a turret, weight 50,000 pounds. The pit has 10 or 12 feet of oil (cottonseed and mineral) floating on water below. The drop was very sudden, but no slipping occurred. The plate was at a relatively low temperature (about 400°) to prevent cracks. It contained nickel. The theory of the part played with this metal is not well settled, but it is considered that 3 per cent of nickel replaces 0.10 per cent of carbon. The addition has been adopted by the Navy Department.

Harveyizing is still experimental only, and is apt to warp the plate. In the process the plate rests on bone dust and charcoal. The operation takes ten days. The temperature is raised to 1,800 degrees and then cooled in air, and then again to 1,400 degrees, and the surface is chilled with jets of ice-cold water flowing through ice and salt.

The armor plate, which we saw tempered, costs $575 per ton. Prices run from $450 to $625 per ton, increased by the cost of the nickel and of the Harvey process, if used. Nickel ore is reduced to nickel matte at the mines and to nickel oxide at the steel works, preparatory to its incorporation with the steel.

We witnessed the tempering of a jacket of a 12-inch army gun. The heat at top was about 1,550°, and at bottom 2,000°. The plunge was rapid, and the flames, although strong, were quickly suppressed by jets of both water and steam, played over them from perforated pipes. We were informed that, owing to the want of uniformity of heating, the jacket would probably be retempered.

We witnessed the forging of a large nickel-steel armor plate, weight 55,000 pounds, under the 125-ton hammer. It is to be 14 inches thick, and is ordered for one of the diagonals of the naval vessel *Massachusetts*. The tup and other moving parts weigh 125 tons, with a possible fall of 16.5 feet. We saw it fall only about 6 or 7 feet. The anvil yielded considerably even to this blow. It is said to be underlaid by a layer of cork as well as wood, to give elasticity. It does not reach

bed rock. The site is the old bed of the river, with gravel bottom, the anvil resting on a pile bed.

They have in preparation an enormous press for bending armor plates, said to be much larger than any now built. We saw some of the parts being put together. It is designed for pressing plates 14 feet square, the clear space between columns being 15 feet 2 inches. The base rests on gravel; then 8 feet of stone; then 20-inch thickness of cast iron in four pieces; the middle blocks weigh 150 tons and the outer blocks 80 tons each. The ends of the four great bolts, with their nuts, rest on the cast-iron bed. These bolts are 26 inches in diameter and 52.5 feet long. The engines are of the three cylinder type, 50 inches in diameter and 90 inches stroke; they work at 70 revolutions; the steam pressure is 125 pounds; the horse power is 12,000. The boilers are tested at 225 pounds pressure.

The figures above given were offhand answers to questions, and may be regarded as possibly subject to revision. All the officers of the company were frank and obliging in giving information.

MEMORANDA CONCERNING DR. JUSTIN'S EXPERIMENTS WITH HIGH EXPLOSIVES IN SHELLS, JUNE 20, 1892.

Dr. Justin's range is situated in a ravine near Perryville, about 30 miles from Syracuse. The gorge is isolated, with a cascade and rivulet bordered by forest trees, which add to the other natural beauties of the place.

The distance from the guns to the ledge of rotten rock, which forms the usual butt, is 700 feet. Two artificial butts of earth, wood, and iron, in juxtaposition, are located only a few feet in front of the guns. The smaller consists of a $\frac{5}{8}$-inch steel plate, backed by 13 inches of beech timber, cut in 1891, and about 15 feet of clay backing, revetted with wood. The larger butt consists of 3.1 inches of rolled steel plate, backed by 3 feet of beech timber and a substantial mass of clay. The magazine and filling room is a wooden shed at a considerable distance up the glen; and a bomb-proof of rock, wood, and iron is placed opposite the guns across the streams.

Two guns were used (a 60-pounder Parrott rifle No. 19, 1864, caliber 5.3 inches, weight, 5,340 pounds; and a 9-inch Blakeley rifle, No. 221, captured at Charleston during the civil war and purchased for these experiments. It has 9 grooves, with a length of bore of 10 feet 7 inches, and a length of cartridge of 18 inches, giving a shot travel of 12 calibers. The mounting and mode of pointing well illustrate the ingenuity and skill which Dr. Justin has brought to his task. They cost little, but answer every purpose.

MUZZLE VELOCITY.

Dr. Justin has had no means of measuring the initial velocity or the pressure in the bore in his firing, and the former is therefore the first thing to be considered in judging the degree of success obtained. Each gun will be discussed in turn.

60-POUNDER PARROTT.

This is a naval gun never used in the Army. Lieut. Very states in an old publication that, with a charge of 6 pounds of black powder and a projectile weighing 55 pounds, it gives a muzzle velocity of 1,320 feet. Commodore Folger, in some firing at Annapolis in 1884, found

that, with a charge of 6 pounds of black powder and a projectile weighing 48 pounds, the muzzle velocity (mean of five rounds) was 1,071 feet and the pressure 6 tons.

Dr. Justin used a charge of 6 pounds of DuPont's brown prismatic S. M. A. powder; but to adapt it better to the requirements of so small a gun by increasing the burning surface he crushed the grains into smaller and irregular fragments. Such a powder was evidently quite unlike that for which the gun was designed, and the resulting velocities necessarily irregular and uncertain.

The first five of the projectiles fired during the experiments witnessed had walls seven-sixteenths of an inch thick with cast-steel points. The last one, fired against the artificial butt, had walls half an inch thick with a forged and tempered steel point. They weighed, including the charge, about 66 pounds and 69 pounds respectively.

From these data it may be assumed that the muzzle velocity with this gun did not exceed about 1,000 feet.

9-INCH BLAKELEY.

No statement could be found as to the initial velocity of this gun. The following record of a 9-inch converted rifle, length of bore 117 inches, was furnished from the Sandy Hook reports of 1875; charge 30 pounds of powder; projectile 215 pounds; velocity 1,179 feet; pressure 19,500 pounds; shot travel about 11 calibers:

Dr. Justin used a charge of 30 pounds of DuPont's broken-up brown prismatic S. M. A. powder. The first three projectiles fired in the experiments witnessed had walls five-eighths of an inch thick; the next two nine-sixteenths of an inch thick; the last one used in firing against the artificial butt was three-quarters of an inch thick. All had cast-iron points except the last, which was of steel, forged and tempered. The weights empty were 225, 214, and 254$\frac{3}{4}$ pounds, respectively, the corresponding charges of forcite being 31$\frac{3}{4}$ pounds, 33$\frac{3}{4}$ pounds, and 29$\frac{1}{2}$ pounds. The carrier empty weighed 10 pounds. The total weights of the projectiles loaded were therefore about 267 pounds, 258 pounds, and 295 pounds, respectively.

From these data it would appear that the muzzle velocity was probably under rather than over 1,000 feet in the firing from this gun.

THE CARRIER FOR THE EXPLOSIVE.

This is the essential distinctive feature of Dr. Justin's system of firing high explosives. It consists of a wooden cylindrical body, reinforced by steel bands, having a truncated ogival front end, with an axial metallic bearing. The rear end is convex, of hard wood, resting directly against the base of the shell.

We witnessed the loading of the wooden carrier (three-eighths of an inch thick) for a $\frac{5}{8}$-inch-thick 9-inch shell. It weighed empty 10 pounds, and was packed with 33$\frac{1}{2}$ pounds of camphorated forcite No. 1 in large slabs pressed firmly in by hand. The base was lubricated with graphite and the sides with cylinder oil. When in the shell, rotation could be effected by hand without much force, it being only necessary to overcome the friction at the base and at the leather side washers.

Ignition is effected by a detonator placed at the rear end of the high explosive. This is virtually a small pistol, caliber .38, firing a leaden bullet with a charge of 70 grains of fine rifle powder into a small priming of forcite No. 1. The bullet is held in place against the powder by a steel pin driven through it. A light wooden case containing the

forcite priming just fills a steel cylinder one-tenth of an inch thick solidly closed at one end, and is held in place by a disk of lead one-twentieth of an inch thick. This steel cylinder has the same outside diameter as the little pistol barrel, and is attached in prolongation of the barrel by a female screw inclosing the muzzle, which also serves to clamp the lead washer between the muzzle and cylinder. The travel left for the bullet is about an inch.

This entire detonator is inclosed in a wooden jacket united to the base of the carrier and projecting into the main charge of forcite. The priming, however, it will be noted, is separated from the latter by two thicknesses of wood and one of steel one-tenth of an inch thick. This throws doubt upon the order of the explosion effected. Fire is communicated to the pistol charge through a vent. When desired to delay action a slow-burning composition is inserted in this vent. Flame is carried to this vent from the friction primer ignited by a firing pin, which receives the blow of the long rod by the side of the charge when this rod is thrown back at the impact of the projectile against the target.

A wooden safety cap is placed over the exposed end of the rod during the manipulations, but this must be removed to put the shell together. There appears to be no difficulty in greatly improving the mode of ignition by making use of some familiar base fuse device.

THE FIRING.

The first four shots were fired from the 60-pounder Parrott. Three exploded at impact against the cliff, and one failed to explode, striking near the top and apparently glancing over. The bombproof afforded a good view of the target, and a rough estimate of the time of flight indicated about 1,000 feet as the velocity. Much shattering of the cliff occurred, but large fragments of the projectiles were found among the débris, which threw doubt upon the nature of the explosions—whether perfect denotations or of a lower order. Among such fragments were a point, polished but intact, a base with about half of the cylindrical part attached, and a portion of a cylinder about half of its original length and one-third of its original circumference.

The fifth shot was also from the 60-pounder Parrott, fired without a detonator at the smaller of the two artificial butts. The shell perforated the plate and the wood backing, and loosened the clay on top in a track curving to the left about 4 feet in a 14-foot length. No sound of explosion was heard, and the indications were that none occurred. The sixth shot was like the last, except that a delay-action fuse was used. The shell enlarged the old hole and exploded just back of the wood backing, forcing the revetment forward and making a 5-foot crater.

The next five shots were fired against the cliff from the Blakeley gun. Three of the shells were of the $\frac{5}{8}$-inch pattern and two of the $\frac{2}{1\,6}$-inch pattern. They all exploded on impact and caused much destruction of the rock. The joint work of the nine shots which exploded (187 pounds of forcite) was roughly estimated as a cut from 10 to 12 feet deep over an area 14 feet wide and 15 feet high; but the finely stratified and rotten character of the rock and its previous hammering prevent any useful deductions as to the power developed. As before, large fragments of the shell were recovered. One was about half a cylinder flattened out; another was an entire base. About half of a detonator was also found, split longitudinally.

The last shot was fired from the Blakeley gun, with a delay action fuse, directed at the larger of the two artificial butts. The point of the shell got through the plate, but the explosion occurred with the base

still outside. The first timber was thoroughly shattered; the rest were broken and bulged to the rear near the horizontal line struck; the top was disturbed but no crater was formed in the clay behind. The wood and iron part tipped forward and fell flat on the ground. When upturned it was found that the hole in the iron had a diameter of about 18 inches. The point of the shell was found in front of the plate, and it exhibited bad flaws in its structure. The front of the plate was scored by fragments which had been driven against it at the explosion.

The Justin Company treated the Board with great courtesy, and exhibited their mode of operating with high explosives in every detail. Dr. Justin stated that three shells had been fired from the 60-pounder Parrott with carriers purposely wedged so that revolution was impossible, and all had exploded just in front of the gun. No premature explosion occurred in the presence of the Board.

The company is certainly entitled to the credit of having labored long, and of having expended considerable sums to perfect their device before bringing it to the notice of the Government. The plan contains features which at the proper time may be found of value in some of the problems of coast defense, especially in connection with armor-piercing projectiles where it is desirable to concentrate the maximum power in the smallest space.

MEMORANDA RELATIVE TO VISIT TO WATERVLIET ARSENAL, JUNE 21, 1892.

Great progress has been made. The south wing is completed and an overhead crane of 150 net tons is mounted and in operation; the shrinking pit is in working order; and the north wing is largely equipped with its tools, including two 30-ton overhead cranes, five large turning lathes, eight large boring and turning lathes, and many smaller tools. We saw work in progress on three 12-inch and six 10-inch guns on these lathes, and on two 10-inch guns in the old shop. The rapidity with which guns can be turned out will probably exceed the estimates by from 25 to 50 per cent. They are actually doing in 14 days what it took 98 days to accomplish on the first gun.

The equipment of the south wing will include, for 16-inch guns, one turning lathe, three turning and boring lathes, one rifling machine, one jacket turning and boring lathe, one breech threading and slotting machine; also, for 12-inch guns, six turning lathes, six turning and boring lathes, two jacket lathes, besides smaller tools.

The shrinking pit is excavated through rock to its bottom; the water which seeps in is pumped out through a subterranean outlet to the river. Two heating furnaces (coal) are in the pit, one for jackets and the other for hoops.

We witnessed the shrinking of the jacket upon a 10-inch gun. It was done vertically, with the breech up. The temperature was about 600°—200° necessary for the difference in diameters, and the rest for safety. All went smoothly. The water jet for nipping was applied at the bottom and gradually raised to the top. The flow is through a 2-inch pipe with jets 4 inches apart.

We saw eight of the twelve completed 8-inch guns on skids. Two 10-inch guns were nearly done. Four or five more guns will be ready in a couple of months.

We met Col. Parker, Capt. Gordon, and Capt. Hobbs, of the Ordnance Department, and were treated with every kindness.

VISIT TO THE WORKS OF THE AMERICAN PROJECTILE COMPANY, JUNE 22, 1892.

This company is associated with the Thompson Electric Welding Company, No. 89 State street, Boston, with works at West Lynn. Lieut. Wood, of the Navy, courteously showed us over the establishment, in which he is now interested as an inventor of some of the processes.

They now make projectiles up to 6 inches in caliber, but most of the work is fabricating 3.2-inch shells and shrapnel for the Navy, with smaller calibers for rapid-fire guns.

The tubes, drawn and open at both ends, are obtained from the Kelly Seamless Tube Company at Findlay, Ohio, office 40 Water street, Boston.

A single weld is required for common shells, always at the end opposite to the fuse: and two welds for shrapnel. Resin is used as the matrix for the latter.

The company have three welding machines of different capacity. The limit of the welded surface with the largest machine is about 14 square inches.

The operations for fabricating semi armor-piercing shell are as follows, the Board witnessed them all:

(1) To make one end of the tube conical. This is done hot in hydraulic press, the accumulator working up to 1,500 pounds per square inch.

(2) To flatten the cone into a solid base. This is also done by hydraulic pressure, two applications being required, which are sometimes practicable at the same heat. The result is so perfectly under control that no machining is required at the base other than to ream out the small hole left therein and to tap it for the fuse.

(3) To shape the point. This is also done by the hydraulic press, leaving, however, a hole.

(4) Machine except the head.

(5) To weld on the steel point electrically. The dynamo gives an alternating current of 250 volts and 80,000 watts (320 ampères). By three converters with 3-inch copper secondaries, coupled in series, this is transformed into a current (alternating) ranging from 0.5 to 1.5 volts and 40,000 watts (80,000 to 27,000 ampères). This is the current that does the welding. The top contact is a single mass of copper; the lower contact is made by six hydraulic plungers; both are kept cool by water circulating inside. So nearly all the resistance in the circuit is thrown into the joint to be welded, that even the shell at its outer extremity remains nearly cool, and the heat is generated exactly where it has work to accomplish. When the joint begins to turn red, a slight motion forward and backward is made to distribute the heat uniformly over the whole surface to be united; and when a white heat is reached, a pressure of 100 tons is applied by the accumulator acting on four pistons; this pressure is continued from one to three minutes. By this process the hole at the end of the projectile is closed by the steel point added.

(6) The point thus added is then forged into shape by a small hammer, which not only does the work but also will reveal any flaw in the weld, should one exist.

(7) The machining is then finished.

(8) The shell is next heated in a gas furnace and hardened inside and out in water.

(9) The copper band is then forced into the chisel cuts by pressure. This process permits high carbon points to be united intimately with

low carbon bodies and thus facilitates the fabricating of armor-piercing projectiles. Lieut. Wood thinks that 12-inch shells for mortars can be made at about the cost of ordinary cast-iron by this process so soon as the demand justifies the preparation of the larger plant necessary for such work. He exhibited the process to the Board without reservation and the Board is indebted to him for his courtesy in the matter.

CONCLUSION.

The Board has thus discharged the duty imposed upon it by the statute to "make an annual report to Congress * * * showing the general operations of the Board * * * and a detailed statement of all contracts, allotments, and expenditures made by the Board."

While the progress of the work of fortification has not been in all respects as great as could have been desired, still it has been positive and substantial.

The capacity for furnishing the steel forgings for heavy guns has been greatly augmented, so that the output of such forgings could be increased in case of necessity. The Army Gun Factory is progressing steadily towards completion in its equipment, with a constantly growing efficiency and capacity. A goodly number of guns and mortars will be at the disposal of the Government at the close of the present year.

The gun-carriage factory has been much improved, and appropriations made for its further development.

The proving ground at Sandy Hook has been advanced in efficiency, and the work of handling and testing guns and carriages greatly facilitated. The construction of gun and mortar batteries has made such advancement as limited appropriation would warrant. Steady, if not rapid, progress has been made in the development and selection of powders, explosives, and rapid-fire and machine guns.

The great *desiderata* at the present time appear to the Board to be—

(1) Greater facilities and increased appropriations for testing and proving guns, mortars, carriages, powders, and explosives.

(2) A Government gun and mortar carriage factory, which can turn out mounts commensurate with the production of guns and mortars.

(3) The early test and selection of an acceptable type of disappearing carriage for 8-inch and 10-inch guns.

(4) Immediate and increased appropriations for the acquirement of sites and for the construction of additional gun and mortar batteries.

(5) A constant supply of forgings to keep the Army Gun Factory employed to its full capacity, and adequate appropriation for finishing and assembling the same.

With the above provided for and maintained, the work of national defense will progress both economically and rapidly to its completion.

J. M. SCHOFIELD,
Maj. Gen., U. S. Army, President of the Board.
HENRY L. ABBOT,
Col. of Engineers, U. S. Army, Brevet Brig. Gen.
HENRY W. CLOSSON,
Colonel Fourth Artillery, U. S. Army.
CLIFTON COMLY,
Major, Ordnance Dept., U. S. Army
BYRON M. CUTCHEON,
Civilian Member.
C. C. MORRISON,
Capt., Ordnance Dept., Recorder of the Board.

APPENDIX A.

Table showing allotments made by the Board of Ordnance and Fortification from October 30, 1891, to October 31, 1892, including statement of unexpended balances under the several appropriations.

ACT OF SEPTEMBER 22, 1888.

Purpose of allotment.	Date.	Section.	Amount.
	1891.		
To defray expenses of fitting up gun for testing Ericsson aërial subaquatic projectiles	Dec. 2	3	$1,000.00
To enable the Chief of Ordnance to make arrangements at Sandy Hook proving ground by which the experiments to be made under the supervision of the Board will be conducted in a manner to fulfill the wishes of the Board	Dec. 3	3	5,000.00
	1892.		
For repairing and altering 12-inch spring return mortar carriage procured from Easton & Anderson, England	Jan. 19	3	2,200.00
Additional to defray cost of preparing the foundation and shelter for the Lewis range and position finder, at Fort Wadsworth	Jan. 19	6	108.00
For the purchase of a completed 3.2-inch field gun fitted with the Yates breech mechanism (see footnote under this act)	Jan. 21	6	1,000.00
For the procurement of 500 metallic cartridge cases with solid head for testing 3.2-inch guns	Jan. 21	6	1,500.00
For a platform for the 4.7-inch Armstrong quick-fire gun	Jan. 21	6	650.00
For the construction of the outer platform plate for mounting gun carriages for use at the ordnance proving ground	Jan. 21	6	2,900.00
To the Brandis Manufacturing Company as extra compensation for the construction of the Lewis range finder	Jan. 21	6	395.35
To complete the purchase of powder required for the test of the 10-inch B. L. rifle (type gun)	Jan. 21	6	11,781.00
For the manufacture of the inner part of the platform plate for mounting gun carriages for use at the ordnance proving ground	Jan. 22	6	2,800.00
For the alteration of two old model 15-inch carriages for mortars for experimental purposes	Jan. 22	6	2,500.00
For the construction of a suitable platform for the two old model 15-inch carriages above referred to	Jan. 22	6	500.00
Additional for the completion of the Woodbridge 10-inch wire-wound gun	Jan. 22	3	125.00
For payment of J. Wall Wilson for 20 gas-checks for the Seabury breech mechanism on the 5-inch siege gun	Feb. 23	6	395.75
To defray cost of moving and mounting gun to test Ericsson aërial subaquatic projectiles	Feb. 24	3	500.00
For altering Fiske position finder at Fort Hamilton	Feb. 24	6	1,880.00
For trial of Seabury breech mechanism	Feb. 24	6	593.25
For 500 rounds for Yates's 3.2-inch gun	Feb. 24	6	1,470.00
For 500 rounds for Driggs's 3.2-inch gun	Feb. 24	.....	470.00
For purchase of shells and powder for use in experiments with high explosive ammunition to be fired from a 12.2-inch mortar	Feb. 24	3	5,700.00
For the compensation of Dr. W. E. Woodbridge, for services in connection with the construction of the Woodbridge 10-inch wire-wound gun	Mar. 23	3	6.00
For the purchase of powder for the test of the 12-inch B. L. rifle, steel (type gun)	Mar. 23	3	603.59
For the purchase of powder for the test of the 12-inch B. L. rifle, steel (type gun)	Mar. 23	6	1,959.63
For the completion of the Carbaugh clinometer sight	May 4	6	50.00
For the purpose of preparing platforms, assembling and mounting Canet and Hotchkiss quick-fire guns, preparing concrete bed and platform for mounting 8 and 10 inch experimental gun carriages, for bedplate for 10-inch carriage, and for bedplate for 8-inch carriage	May 4	3	14,450.00
For procuring and testing Walter combination fuses (additional)	May 5	6	131.71
For the purpose of testing, at the Sandy Hook proving ground, the telescopic sight invented by Lieut. H. L. Best, U. S. A	Aug. 9	6	70.00
For the purpose of testing, at the Sandy Hook proving ground, the Carbaugh clinometer artillery sight	Aug. 9	6	65.00
For the purpose of increasing the facilities for examining, testing, and experimenting with gun carriages, etc., at the Ordnance proving ground	Aug. 10	3	6,000.00
Total	.....	.....	66,804.28

Table showing allotments made by the Board of Ordnance and Fortification from October 30, 1891, to October 31, 1892, etc.—Continued

REVOCATIONS OF ALLOTMENTS.

Allotment of July 27, 1889, for the manufacture of one King 10-inch disappearing carriage, revoked, $12,750, which sum is to be added to section 6 balance	$12,750
Allotment of January 21, 1892, for the purchase of a completed 3.2-inch field gun, fitted with the Yates breech mechanism, revoked March 21, 1892, $1,000, to be added to section 6 balance	1,000
Total	13,750
Total allotments to October 30, 1891 (see First Annual Report)	3,899,245.76
Allotted from October 30, 1891, to October 31, 1892	66,804.28
Total allotted to date	3,966,050.04
Revocations of allotments	13,750.00
Total remaining allotted	3,952,300.04
Total appropriated under this act	3,972,000.00
Total allotted	3,952,300.04
Balance available for allotment	19,699.96

ACT OF MARCH 2, 1889.

Purpose of allotment.	Date.	Amount.
For steel forgings for not less than twenty-four 3.6-inch field guns	1892. Jan. 22	$24.000
Total allotted, expended, and reverting to Treasury under this act to October 30,1891 (see First Annual Report)		$1,226,819
Allotted from October 30, 1891, to October 31, 1892		24,000
Total		1,250,819
Total appropriated under this act		1,289,594
Total allotted, expended, and reverting to Treasury to October 31, 1892		1,250,819
		38,775
Reappropriated in act of August 18, 1890 (see First Annual Report, p. 37)		14,000
Balance available for allotment		24,775

ACT OF AUGUST 18, 1890.

Purpose of allotment.	Date.	Amount.
For machinery and plant for the manufacture of steel shell or shrapnel for field guns	1891. Dec. 2	$5,000.00
For purchase of high explosives for use in connection with experiments with high explosives at Sandy Hook	Dec. 2	1,200.00
For purchase of steel shell for use in experiments with high explosives	Dec. 2	250.00
For erection of a storage magazine and a loading room for high explosives, in addition to the $1,500 already allotted	1892. Jan. 21	35.00
Additional for a storage magazine for high explosives	Feb. 12	315.00
For the platform for an 11-inch rifle, M. L., used in experiments with high explosives	Jan. 21	350.00
For completing the manufacture (finishing and assembling) of 3.2-inch steel field siege cannon from forgings procured under the fortification act approved March 2, 1889	Jan. 22	19,000.00
To apply on purchase of experimental casemate carriage for 12-inch B. L. rifle, with necessary detailed construction drawings of the same	May 5	80,000.00
To defray the cost of fitting up a carriage for the test of the Brown segmental tube wire gun	Oct. 5	175.00
To defray the cost of additional expenses incident to the test of the pneumatic disappearing 10-inch gun carriage	Oct. 7	700.00
For the purchase or manufacture of steel shell or shrapnel for field guns	Oct. 7	12,000.00
For carriages for breech-loading rifled mortars of 12-inch caliber, procured under the fortification act approved September 22, 1888	Oct. 7	225,000.00
For the necessary expenses of the Board from October 30, 1891, to October 31, 1892	.....	2,654.20
Total	.....	346,679.20

Table showing allotments made by the Board of Ordnance and Fortification from October 30, 1891, to October 31, 1892, etc.—Continued.

ACT OF AUGUST 18, 1890—Continued.

Allotted to October 30, 1891 (see First Annual Report)	$3,319,071.00
Allotted from October 30, 1891, to October 31, 1892	346,679.20
Total	3,665,750.20
Total appropriated under this act	3,832,935.00
Total allotted	3,665,750.20
	167,184.80
Reappropriated from act of March 2, 1889	14,000.00
Balance available for allotment	181,184.80

ACT OF FEBRUARY 24, 1891.

Purpose of allotment.	Date.	Amount.
	1891.	
For the construction of a modified Schultz chronoscope	Dec. 2	$200.00
For the purchase of powder for the test of the 12-inch B. L. rifle, steel (type), in addition to the amount allotted for the test of that gun	1892. Mar. 23	7,642.78
To provide ammunition for 15 rounds, with charges varying between 170 and 250 pounds of powder and a projectile weighing 575 pounds, to enable the Pneumatic Gun Carriage and Power Company to obtain the information necessary to insure the proper setting of the valves of the 10-inch pneumatic disappearing gun carriage	Mar. 29	2,000.00
For the purpose of securing photographs illustrating results of tests, etc., for the Board	May 3	100.00
For the manufacture of one Lewis range finder embodying the modifications as set forth in his letter of April 28, 1892, the instrument to be such as can be used at all ranges between 1,500 and 10,000 yards	May 3	3,000.00
Additional for the completion of the Woodbridge 10-inch wire-wound gun, the expenditure to be made under such supervision as the Chief of Ordnance may direct	May 3	1,000.00
For the purchase abroad of smokeless powder for experimental purposes	May 4	425.00
For the purchase abroad of one or more sample range finders for field artillery, of the best pattern obtainable by the Chief of Ordnance	May 5	1,000.00
For 2,000 projectiles for 3.2-inch B. L. rifles, to be used in experimental firing	June 14	4,000.00
For certain experiments and appliances and skilled help in making delicate measurements and drawings for the further investigation offered to compression by the copper cylinders in crusher gauges	Aug. 9	500.00
Total	.....	19,867.78

Allotted to October 30, 1891 (see First Annual Report)	$2,140,453.00
Allotted from October 30, 1891, to October 31, 1892	19,867.78
Total	2,160,320.78
Total appropriated under this act	2,290,803.00
Total allotted	2,160,320.78
Balance available for allotment	130,482.22

ACT OF JULY 22, 1892.

Purpose of allotment.	Date.	Amount.
For the necessary expenses of the Board, including salary of civilian member, from July 1, 1892, to October 31, 1892	.....	$1,666.66

Total appropriated under this act	$210,000.00
Total allotted	1,666.66
Balance available for allotment	208,333.34

Table showing summary of appropriations and allotments made by the Board of Ordnance and Fortification from September 22, 1888, to October 31, 1892.

SUMMARY TO OCTOBER 31, 1892.

Appropriation.	Total appropriations.	Total allotments, expenditures, and reverting to Treasury.	Total balances on hand not allotted or expended.	Total allotments and expenditures from Oct. 30, 1891, to Oct. 31, 1892.
Fortification act Sept. 22, 1888	$3,972,000.00	$3,952,300.04	$19,699.96	$53,054.28
Army appropriation, Mar. 2, 1889	56,000.00	3,156.20	----------	----------
		52,843.80	----------	----------
Fortification act Mar. 2, 1889	1,233,594.00	1,194,819.00	24,775.00	24,000.00
Fortification act Aug. 18, 1890	3,832,935.00	3,665,750.20	181,184.80	346,679.20
Fortification act Feb. 24, 1891	2,290,803.00	2,160,320.78	130,482.22	19,867.78
Fortification act July 23, 1892	210,000.00	1,666.66	208,333.34	1,666.66
Grand total	11,595,332.00	11,030,856.68	*564,475.32	445,267.92

Total allotments	$10,967,568.32
Total expenditures for necessary expenses of Board	10,444.56
Total turned into Treasury	443.80
Total reverting to Treasury by lapse of appropriation	52,400.00
Grand total	11,030,856.68

* Since the preparation of the above table there have been allotted sums aggregating $237,183.29, leaving a balance to the credit of the Board of $327,292.03, of which amount $134,500 is for a special purpose and no longer available for allotment by the Board. The balance actually available to carry on the work under the supervision of the Board is, therefore, $192,792.03.

APPENDIX B.

SANDY HOOK PROVING GROUND,
Sandy Hook, New Jersey, March 17, 1892.

SIR: In compliance with your instructions of the 11th instant, I have the honor to forward herewith the record of all firings made with the 10-inch B. L. rifle from the time that powders furnished by Du Pont & Co. began to be tested in it up to and including the latest firing made with this gun on the pneumatic disappearing carriage.

* * * * * * *

The platform, or masonry foundation, for the pneumatic carriage was built by the Department as required by the terms of the contract with the Pneumatic Gun Carriage and Power Company. This platform was begun August 18, 1890, and completed November 15, 1890. The carriage was erected by the company, being completed and ready to receive the gun about August 8, 1891. It was not, however, until October 17, 1891, that a suitable powder for the gun could be obtained. Immediately on the acceptance of the powder represented by the sample tested October 15 and 17, 1891, the gun was dismounted from the proof carriage and mounted on the pneumatic carriage, the work being completed November 6, 1891. The final touches were put upon the carriage and its working tested by the company so far as it could be done without firing the gun. These arrangements having been completed the preliminary test of the carriage by actual firing was begun December 4, and continued to December 6, 1891. The principal circumstances and events observed during this trial are as follows:

No. of round.	Charge of powder.	Air pressure per square inch. In—	Before lifting gun.	After lifting gun.	Before firing.	After firing	Remarks.
	Pounds.		*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	
1.....	170	Receiver.....	960	950	300	500	24½ minutes occupied in lifting gun. First part of motion very slow; last few feet more rapid. Gauge in main cylinder replaced by indicator. 1,000 pounds spring indicator. Piece depressed in recoil, striking buffers, and rebounding about 6 inches more or less, and then returning to buffers.
		Main cylinder ..	650	500	300	300	
2.....	170	Receiver.....	910	675	360	580	Time occupied in lifting gun, 10 to 15 seconds from beginning of motion. Gun came into battery with considerable shock. At the discharge piece moved over about half the arc of recoil and stopped. It then oscillated up and down twice and came down to the buffers, striking them with considerable force, and rebounding upwards about 4 inches.
		Main cylinder ..	650	450	360	375	
3.....	180	Receiver.....	980	*550	350	625	Time occupied in lifting gun, 40 seconds. Elevation of piece was changed from plus 2 degrees to about minus 5 degrees and back with ease. Piece moved smoothly back in recoil, stopping at point for which trip valve was set, and then falling to the buffers. There was a slight rebound upwards.
		Main cylinder ..	Not taken	*550	350	380	

No. of round.	Charge of powder.	Air pressure per square inch. In—	Before lifting gun.	After lifting gun.	Before firing.	After firing	Remarks.
	Pounds.		*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	
4.....	190	Receiver.....	800	*500	365	625	Trip valve set at 6 inches from bottom. Gun had to be lifted about two-thirds of the height into battery by means of jacks. Recoil smooth. Very slight rebound from buffers.
		Main cylinder ..	640	*500	365	365	
5.....	200	Receiver.....	925	620	400	675	Gun oscillated up and down twice after passing over about half the arc of recoil. It then settled very slowly until trip valve acted, and then moved rapidly to the buffers. Slight rebound from buffers.
		Main cylinder ..	675	500	400	470	
6.....	225	Receiver.....	980	*580	413	750	Time occupied in lifting gun, 40 seconds. Gun came into battery with considerable shock. Circumstances of recoil same as in last round. Screw bolt holding left elevating arm to breech hoop broken during recoil. Gun did not rise when pressure was equalized after firing. Left elevating arm bent by striking carriage.
		Main cylinder ..	675	*580	413	435	

*After equalizing.

To appreciate the significance of these figures it should be understood that the gun being down, in order to lift it and place it "in battery" air is pumped into cylinder and receiver until there is sufficient pressure in the former to about start the gun, and a sufficient margin of pressure in the latter to carry the gun to the firing position. The air is then allowed to pass from receiver to under side of piston in cylinder, and cut off at a suitable point to prevent gun coming into battery with undue shock. At the end of this motion the pressures in both receiver and cylinder were so great that the work of recoil on firing was not sufficient to bring the gun down to its loading position. It was therefore necessary to equalize the pressure in the two and by allowing the air to escape reduce the pressure to that shown in the third column. In the fourth column is shown the pressures in cylinder and receiver after firing, reduced in the former by the air having been allowed to pass into all its parts both above and below the piston. The existing pressures were now not sufficient to raise the gun, and it was necessary to resort to the air pump to bring the pressures up to those recorded in the first columns respectively. This defect, together with the breaking of the screw bolt which held the left elevating arm to breech hoop, caused firings to be discontinued on December 9, 1891, in order that the carriage might be altered and repaired.

The alterations made consisted essentially in providing a pipe fitted with return, governing and check valves, which pipe was so placed as to connect the bottom of the cylinder with the top of same. The tubes through the head of piston connecting the space under the head with that above it were closed. The effect of this arrangement was that during the downward motion of the piston the air was allowed to escape freely from below the piston head to the space above it, thus equalizing the pressure on both sides, and thus reducing the effective area for compressing the air from the entire area of the piston head to that of the ram, *i. e.*, from an area of 25 inches diameter to that of 20 inches diameter. It was expected that this would permit an increase of the initial compression (*i. e.*, the compression just before firing) from

that recorded in third column above to about 530 pounds, so that it would not be necessary to allow air to escape as described above after lifting the gun. No force would therefore be wasted, and the entire amount accumulated during recoil would be utilized in returning the gun to battery.

By means of the governing valve the passage of air could be controlled, and thereby the effective area increased or diminished at pleasure.

These alterations were completed and firings resumed on February 26, 1892. Four rounds were fired. The circumstances of firing may be summarized as follows:

Number of round.	Charge of powder.	Pressure per square inch— In—	Before lifting gun.	After lifting gun.	Before firing.	After firing.	Remarks.
	Lbs.		*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	
7	170	Receiver	.....	*565	530	.....	Center or trip valve set at 4 inches inside. Return valve wide open. Twenty-eight minutes occupied in lifting gun. Gun in recoiling came within about 2 feet of buffers, oscillated up and down twice, and then returned to firing position. Check valve between cylinders had not been closed by company's representative before firing.
		Main cylinder	.....	565	530	.....	
8	180	Receiver	.....	.....	*530	.....	Central or trip valve set at 3 inches inside. Gun in recoiling came within 15 inches of buffers, oscillated up and down twice, rose to a height of 4 feet from buffers, and remained there.
		Main cylinder	.....	.....	530	745	
9	200	Receiver	.....	*530	530	.....	Gun in recoiling came within 15 inches of buffers, oscillated up and down twice, rose to a height of 4 feet from buffers, and remained there.
		Main cylinder	745	530	530	790	
10	225	Receiver	.....	*530	530	850	Gun oscillated to buffers, rebounded 4¾ inches, and remained at that height. Compression of buffers, seven-eighths of an inch.
		Main cylinder	765	530	530	630	

*After equalizing.

At the first round, through inadvertence, the check valve between receiver and cylinder was not closed before firing; as a result, the pressure accumulated in the receiver, reacted on the piston, and raised the gun into battery. There was no means of getting the gun back to loading position except by allowing the greater portion of the air to escape, necessitating considerable labor and expense in pumping it back again. The gun was therefore loaded with great difficulty while in the firing position and fired, the initial compression being 530 pounds. In the next two rounds the gun recoiled to within 15 inches of the buffers, then rose, and remained at a height of 4 feet, in which position the loading was accomplished with some difficulty. At the last round, the charge being 225 pounds, the gun recoiled sufficiently to bring the central or trip valve into action, relieving the pressure under the piston head by permitting the air to pass through this valve into the interior of the ram; the gun therefore came down to buffers easily and without shock. The unsatisfactory action with reduced charges is attributed by the company to the insufficient size of the pipe connecting the upper and lower parts of the cylinder, and also of the opening in the central valve leading to the interior of the ram. The firings

were therefore suspended, in order that these parts might be enlarged so as to permit a free flow of air through them. This the company is now doing, and it is hoped that in a few days firings may be again resumed.

Very respectfully, your obedient servant,

FRANK HEATH,
Capt., Ord. Dept., U. S. Army, Commanding.

The CHIEF OF ORDNANCE, U. S. ARMY,
Washington, D. C.

APPENDIX C.

SANDY HOOK PROVING GROUND,
Sandy Hook, New Jersey, March 26, 1892.

SIR: I have the honor to forward herewith record of firing of the last seven of the preliminary rounds authorized to be fired from the 10-inch B. L. rifle mounted on the pneumatic disappearing carriage.

As stated in my report of March 17, 1892, the firings were suspended February 27, 1892, in order that the pipe connecting the upper to lower parts of the cylinder, and also the opening in the central valve, might be enlarged so as to permit a free flow of air through them. This having been accomplished, the test was continued on March 22, 1892.

The principal circumstances and events observed during these rounds may be summarized as follows, and, with the summary contained in the report above referred to, make a complete record of all that occurred during the preliminary test of this carriage:

No. of round.	Charge of powder.	Pressure per square inch— In—	Before lifting gun.	After lift-gun.	Before firing.	After firing.	Remarks.
	Lbs.		*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	
11	180	Receiver.....	.....	.....	520	800	Gun recoiled to buffers, rebounded 5½ inches, and remained at that height. Compression of buffers, 1⅞ inches; center valve 2 inches up; return valve wide open—2.7 inches.
		Main cylinder ..	.....	.....	520	630	
12	200	Receiver.....	*875	535	525	825	Gun recoiled to buffers, rebounded 6 inches, and remained at that height. Compression of buffers, 2 inches; time occupied in lifting gun, 30 minutes; gun began to raise 1 minute after turning valve; center valve 1¾ inches up; return valve 1.3 inches open.
		Main cylinder ..	625	535	525	650	
13	225	Receiver.....	†800	525	525	875	Gun loaded when 6 inches from buffers. Time occupied in lifting gun, 1 minute and 15 seconds. Gun recoiled to buffers, rebounded 4 inches, then fell back 2 inches and remained at that height. Compression of buffers, 2 inches; center valve 1¾ inches up; return valve 0.8 inch open.
		Main cylinder ..	650	525	525	640	
14	250	Receiver.....	‡825	525	525	860	Time occupied in lifting gun, 1 minute and 40 seconds. Gun recoiled to within 18 inches of buffers, remained for a few minutes, and settled very slowly to buffers; center valve 1½ inches up; return valve 0.1 inch open.
		Main cylinder ..	635	525	525	620	
15	250	Receiver.....	†840	540	525	860	Gun recoiled to within about 2 feet of buffers, oscillated up and down twice, and then settled to buffers; center valve 1½ inches up; return valve 0.1 inch open.
		Main cylinder ..	650	540	525	610	
16	250	Receiver.....	§860	525	525	900	Gun recoiled to within about 2 feet of buffers, oscillated up and down, and then settled to buffers; center valve 1½ inches up; return valve 0.1 inch up.
		Main cylinder ..	610	525	525	600	
17	250	Receiver.....	‖880	525	525	875	Gun oscillated up and down twice after passing over about half the arc of recoil, and settled very slowly to buffers.
		Main cylinder ..	610	525	525	575	

* Equalized to 750.
† Equalized to 725.
‡ Equalized to 730.
§ Equalized to 715.
‖ Equalized to 530.

The results were normal and in accordance with anticipations, except in rounds 11, 12, and 13, when the gun came down on the buffers with greater force than was calculated. This can be controlled by reducing the opening in the return valve to about 0.5 inch opening.

If nothing unforeseen occurs the test before the Board of Ordnance and Fortification can begin on Tuesday next, the 29th instant, in accordance with your instructions of the 23d instant.

Very respectfully, your obedient servant,

FRANK HEATH,
Capt., Ord. Dept., U. S. Army, Commanding.

The CHIEF OF ORDNANCE, U. S. ARMY,
Washington, D. C.

APPENDIX D.

SANDY HOOK PROVING GROUND,
Sandy Hook, New Jersey, April 1, 1892.

SIR: I have the honor to forward herewith record of firing of the 10-inch B. L. rifle, steel, mounted on the pneumatic disappearing carriage. The carriage was in the same condition as noted in my report of March 26, 1892. The circumstances of firing may be summarized as follows:

No. of round.	Weight of powder.	Pressure per square inch— In—	Before lifting gun.	After lifting gun.	Before firing.	After firing.	Remarks.
	Lbs.		*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	
18.....	240	Receiver.....	960	525	525	825	Time occupied in lifting gun, 1 minute. Gun in recoiling came to within 2 feet 9 inches of buffers, and remained at that height; center valve 1½ inches up; return valve 0.2 inch open.
		Main cylinder..	*595	525	525	670	
19.....	230	Receiver.....	825	525	525	825	Time occupied in lifting gun, 1 minute 22 seconds. Gun in recoiling came to within 1 foot 9 inches of buffers, and remained at that height; center valve 1½ inches up; return valve 0.2 inch open.
		Main cylinder..	650	525	525	665	
20.....	220	Receiver.....	820	525	525	850	Time occupied in lifting gun, 1 minute 12 seconds. Gun recoiled to buffers, rebounded 3¾ inches, and remained at that height. Compression of buffers 1½ inches. Center valve 1½ inches up; return valve 0.8 inch open.
		Main cylinder..	665	525	525	650	

*Equalized to 550.

These rounds were fired in the presence of the Board of Ordnance and Fortification, as required by your instructions of March 23, 1892. The Board, however, having decided to allot funds for fifteen additional rounds prior to the official test, authorized me to request that these rounds may be considered a part of the series of fifteen referred to. Authority is therefore requested to include these rounds in this series, which series has already been authorized by your telegram of the 30th ultimo.

Very respectfully, your obedient servant,

FRANK HEATH,
Capt., Ord. Dept., U. S. Army, Commanding.

The CHIEF OF ORDNANCE, U. S. ARMY,
Washington, D. C.

APPENDIX E.

SANDY HOOK PROVING GROUND,
Sandy Hook, New Jersey, June 15, 1892.

SIR: I have the honor to forward herewith record of firing of twelve rounds from the 10-inch B. L. rifle, steel, mounted on the pneumatic disappearing carriage. These twelve rounds are a portion of the fifteen additional preliminary rounds authorized by your instructions of March 30, 1892.

The records of the first three were forwarded to your office with my report of April 1, 1892.

After the firings of the 29th of March a leak of air from the main cylinder was discovered. The leak was so serious as to prevent further firing. On examination it was found to be due to defects in the casting of the bronze ring on the ram on the main cylinder. This ring was removed and replaced by one of steel. The center valve in main cylinder was removed, the object being to increase the simplicity of the system by reducing the number of parts to be adjusted before firing; to admit of a lower initial pressure or pressures before firing, and to obtain better control of recoil so as to prevent the gun coming against the rubber buffers with undue shock, as in rounds 70 and 71.

A hand winch was also added to the rear part of carriage for use when the recoil was not sufficient to bring the gun to the firing position. In working this winch the pull was against a constantly increasing air pressure as the piston head came down; a small hole was therefore bored connecting the air space of the main cylinder with that in the interior of piston; by this means the pressure was equalized on the two sides of the piston head as the latter was pushed down.

While these changes were being made the gun was removed from the carriage and placed on its proof carriage, where firings were conducted for determining the accuracy of the gun, proof of powder, and the test of the 11¼-inch armor plate; the gun was then replaced on the disappearing carriage and firings therefrom resumed on the 6th of June. The circumstances of firing as they occurred at each round may be summarized as follows:

Number of round from—		Weight of powder.	Pressure per square inch—					Remarks.
Carriage.	Gun.		In—	Before lifting gun.	After lifting gun.	Before firing.	After firing.	
		Lbs.		*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	
21	105	170	Receiver.....	875	500	470	710	Return valve 0.3 inch open. Piece recoiled and remained in air 30 inches from buffers. Gun pulled down by hand winch to 14¾ inches from buffers and loaded in that position for next round.
			Main cylinder...	645	490	470	570	
22	106	170	Receiver.....	690	480	480	840	Return valve 0.4 inch open. Gun failed to rise on opening of pass valve. Air pumped for 5 minutes into receiver with valve open. Gun rose during pumping. Gun recoiled to within 15 inches of buffers, rose 7 inches, and remained 22 inches from buffers.
			Main cylinder...	690	480	480	620	

Number of round from—		Weight of powder.	Pressure per square inch.					Remarks.
Carriage.	Gun.		In—	Before lifting gun.	After lifting gun.	Before firing.	After firing.	
		Lbs.		*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	
23	107	170	Receiver.....	925	540	520	790	Return valve 0.9 inch open. When gun was up cylinder and receiver 540 pounds air let out to equalize pressure at 520 pounds. Gun came down to within 5 inches of buffers and then rose, remaining at 18 inches from buffers. It took about 5 seconds to pull gun down.
			Main cylinder...	662	540	520	655	
24	108	250	Receiver.....	790	510	520	925	Return valve 0.25 inch open. When air let into cylinder brought pressure to 705 pounds per square inch; 720 pounds are required to raise gun. Pump used to raise gun. Time required, 3 minutes. After raising, pressure equalized at 510 pounds. Pump was then worked for 5 minutes to bring pressure up to 520 pounds.
			Main cylinder ..	655	510	520	565	
25	109	170	Receiver.....	910	515	520	860 800	Return valve 1 inch open. When air let into cylinder brought pressure up to 700 pounds per square inch, which was not sufficient to raise gun. The pump was worked for about 5 minutes to raise gun. The time to raise was 1 minute and 5 seconds. Pressure when equalized was 515 pounds per square inch. Pump again worked to bring pressure to 520 pounds, consuming 2 minutes. The gun came down within about 2 inches from the buffers, then rose until it was 12 inches from buffers. After about 3 minutes receiver had 800 pounds pressure, and the cylinder 620 pounds. One man was able to work wheel to bring gun down on buffers. When gun was down on the buffers pressure in the cylinder increased to 660 pounds.
			Main cylinder ..	535	515	520	620 660	
26	110	225	Receiver	790	510	520	860	Return valve 0.5 inch open. When air was let into cylinder from receiver pressure rose to 710 pounds, which was not sufficient to move gun. The gun was started by 2 men working on crowbars and by 2 men pushing upwards on elevating arms. It took 1 minute 10 seconds to raise. When gun was in battery pressure in cylinder was 412 pounds. Pressure equalized to 510 pounds. Pump was worked for 3½ minutes to bring pressure up to 520 pounds. Gun came down to within 2 inches of buffers, then rose about 6 inches, and finally settled back on buffers. There was a slight leak around packing and firing was discontinued.
			Main cylinder..	645	510	520	610	
27	111	200	Receiver.....	960	Not taken	520	900 825	Return valve 0.7 inch open. Pressure equalized at 520 pounds. Immediately after firing pressure in receiver was 900 pounds, which fell afterwards to 825 pounds. Cylinder at same time was about 620 pounds. Gun came down within 2 or 3 inches from buffers and then rose and remained 10¾ inches from buffers. Pulled down by a chain and mechanism attached to carriage. When piston was down pressure in cylinder was 665 pounds.
			Main cylinder ..	655	Not taken	520	620 665	

Number of round from—		Weight of powder.	Pressure per square inch.					Remarks.
Carriage.	Gun.		In—	Before lifting gun.	After lifting gun.	Before firing.	After firing.	
		Lbs.		*Lbs.*	*Lbs.*	*Lbs.*	*Lbs.*	
28	112	170	Receiver.....	825	520	520	{860 {810	Return valve 0.9 inch open. When gun was in elevated position pressure in cylinder was 385 pounds, but air in ram brought this up to 450 pounds. Time of raising was 2 minutes. Gun came down within 4 or 5 inches from buffers, and then rose, remaining at 17¼ inches from buffers. Pressure equalized at 520 pounds. Gun brought down by chain and mechanism. Some time after firing pressure in receiver was 810 pounds, and in the cylinder 623 pounds.
			Main cylinder ..	655	520	520	623	
29	113	200	Receiver.....	790	525	520	840	Return valve 0.7 inches open. Pressure equalized to 725 pounds to raise gun. Time occupied in raising gun, 2 minutes. Gun came down to within about 1 inch of buffers, then rose to 11 inches, and remained there. Gun pulled down by hand. Compression of buffers in elevating apparatus $\frac{3}{16}$ of an inch. After pulling gun down pressure in main cylinder rose to 655 pounds.
			Main cylinder ..	680	525	520	{620 {655	
30	114	225	Receiver.....	840	530	520	950	Return valve 0.5 inch open. Air blown out and pressure reduced before firing to 520 pounds in receiver and cylinder. Time of lifting gun, 1 minute 50 seconds. Pressure in receiver directly after firing, 950 pounds. Gun came down within an inch or two from buffers, then rose to 8 inches. Gun partly settled down on buffers when elevating arm was moved up from 20 degrees. Pulled down by hand.
			Main cylinder ..	655	530	520	Not taken	
31	115	170	Receiver.....	860	545	520	785	Return valve 0.1 inch open. Equalized at 545 pounds. Air blown out and pressure reduced before firing to 520 pounds in receiver and cylinder. Time of raising gun, 1 minute 17 seconds. Gun came down to about 4 inches of buffers, rose to 14 inches, remaining there. Gun pulled down by 2 men working on chain.
			Main cylinder ..	665	545	520	Not taken	
32	116	250	Receiver.....	790	530	520	940	Return valve 0.25 inch open. Equalized at 530 pounds. Air blown out and pressure reduced before firing to 520 pounds in receiver and cylinder. 730 pounds in cylinder would not raise gun. Pinch bars used under buffers to start gun. Time of raising gun, 3 minutes. Gun in recoiling came to buffers, jumped a few inches, and settled back again. Shortness of recoil is due to new packing working stiffly.
			Main cylinder ..	675	530	520	565	

Very respectfully, your obedient servant,

FRANK HEATH,
Capt., Ord. Dept., U. S. Army, Commanding.

The CHIEF OF ORDNANCE, U. S. ARMY,
Washington, D. C.

APPENDIX F.

SANDY HOOK PROVING GROUND,
Sandy Hook, New Jersey, November 30, 1892.

SIR: I have the honor to submit, at the request of the Board of Ordnance and Fortification, the following results of firings made with the 10-inch B. L. rifle.

These results are not contained in my formal reports of March 17, June 15, and September 15, 1892, as they were made in connection with proofs of powders, and not specially for the test of the carriage:

Date.	No. of rounds.	Powder charge.	Elevation.	Mean powder pressure.	Air pressure before lifting in—		Equalized at—	Position of return valve.	Time required to bring gun in battery.	Remarks.
					Receiver.	Cylinder.				
		Lbs.	′	*Lbs.*	*Lbs.*	*Lbs.*		″	′ ″	
June 21	33	65	0	Less than 24,000	870	660	.....	1	.....	Gun recoiled only a short distance and returned to firing position.
22	34	80	10	....do.....	920	630	525	.5	1 20	Gun recoiled only a short distance and returned to firing position.
22	35	100	10	....do.....	870	650	525	.5	1 45	Gun recoiled only a short distance and returned to firing position. Pulled down by hand.
22	36	120	10	22,920	835	670	525	.5	1 20	Gun recoiled about 40 inches and remained in that position.
24	37	200	10	33,393	880	700	.....	.7	1 6	Gun in recoiling came to within about 3 inches of buffers and then rose to 12½ inches and remained.
24	38	215	10	41,080	840	625	525	.6	1 25	Gun in recoiling came to within 3½ inches of buffers and then rose to 12½ inches and remained.
25	39	200	10	28,700	825	700	525	.7	1 25	Gun in recoiling came to within 3 inches of buffers and then rose to 13½ inches and remained. Pulled down by 2 men in 2 minutes.
25	40	215	10	32,283	830	660	525	.6	1 22	Gun in recoiling came to within 2 inches of buffers and then rose to 10 inches and remained. Pulled down by 2 men in 45 seconds.
25	41	225	10	35,525	860	635	525	.5	1 32	Gun in recoiling came to within 6 inches of buffers, rose to 13 inches; in about 3 seconds it settled 2 inches. Pulled the remaining distance by hand.
July 9	42	200	10	24,575	850	650	520	.7	1 15	Gun in recoiling came to within about 9 inches of buffers, and then rose to 11½ inches and remained. Pulled down by hand.

Date.	No. of rounds.	Powder charge.	Elevation.	Mean powder pressure.	Air pressure before lifting in—		Equalized at—	Position of return valve.	Time required to bring gun in battery.	Remarks.
					Receiver.	Cylinder.				
			′	*Lbs.*	*Lbs.*	*Lbs.*			′ ″	
July 9	43	225	10	29,420	790	677	525	.5	1 12	Gun in recoiling came to within about 6 inches of buffers, and then rose to 18 inches and remained. Pulled down by hand.
" 9	44	250	10	33,650	825	650	525	.3	1 10	Gun in recoiling came to within about 6 inches of buffers, and then rose to 8 inches, in which position it remained about 1 minute. It then settled slowly to within 1½ inches from buffers. Pulled the remaining distance by hand.
Aug. 19	73	200	20	37,617	880	645	525	.7	1 10	Gun in recoiling came to within 6 inches of buffers, and rose to 16 inches and remained. Pulled to buffers by hand.
19	74	200	20	56,216	830	670	525	.725	1 15	Gun in recoiling came to within 5 inches of buffers, and rose to 12 inches and remained. Pulled down to buffers by hand.

Very respectfully, your obedient servant,

FRANK HEATH,
Capt., Ord. Dept., U. S. Army, Commanding.

The CHIEF OF ORDNANCE, U. S. ARMY,
Washington, D. C.

APPENDIX G.

SANDY HOOK PROVING GROUND.

SANDY HOOK, NEW JERSEY,
September —, 1892.

SIR: I have the honor to submit the following report of the official test by the Board of Ordnance and Fortification of the 10-inch disappearing pneumatic gun carriage, furnished under contract with the Department by the Pneumatic Gun Carriage and Power Company.

At the commencement of the test the carriage was in the same condition as at the close of the preliminary trials and described in my report of June 15, 1892. At the close of the trial just mentioned it was found that five holding-down bolts in front traverse circle were broken; the company therefore before the official trial drilled ten new holes between the old ones and put in ten new bolts of 2½ inches diameter at the threaded part, the diameter of the old bolts being 2 inches at threaded part.

The official program for the test of this carriage involved the firing of thirty rounds, as follows:

Ten rounds with such charges as may be suited to test the working and adjustment of the several parts of the carriage. Ten rounds with full service charges as may be directed by the Board. Ten rounds with full service charges as rapidly as the gun can be served.

The principal details and circumstances connected with the firing of these thirty rounds (not including rapidity results) are contained in the following table.

Powder used in each round: Du Pont's brown prismatic, V. U.; lot 7; specific gravity 1.835.

Projectiles.—Cast-iron cored shot weighted up to 575 pounds.

Date.	Round.	Powder charge.	Elevation.	Mean powder pressure.	Air pressure per inch before lifting in—		Equalized at—	Position of return valve open.	Time required to bring gun in battery.	Remarks.
					Receiver.	Cylinder.				
		Pounds.	*Degrees.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	"	′ ″	
Aug. 12.....	47	180	3	25,133	940	700	525	1	1 15	After lifting gun pressure equalized at 575 pounds. Air was then let off and pressure reduced to 525 pounds. Gun in recoiling came within about 6 inches of buffers and rose to 13 inches and remained. Pulled down by 2 men in 1 minute and 15 seconds.
12.....	48	250	20	41,716	825	670	525	0.275	1 30	Gun in recoiling came to buffers and remained for about 30 seconds; it then rose about 2 inches from buffers and remained there for about 1 minute, and then settled very slowly to buffers.
12.....	49	190	3	24,517	940	575	525	0.925	1 45	Gun in recoiling came within 6 inches of buffers, and then rose to 16 inches and there remained. Pulled down by hand in 1 minute and 45 seconds.
12.....	50	210	5	36,158	860	675	525	0.8	1 16	Gun in recoiling came within 3 inches of buffers, and rose to 13 inches and there remained. Pulled down by hand in 1 minute and 45 seconds.
12.....	51	200	3	28,545	850	575	525	0.850	1 14	Gun in recoiling came to buffers, compressing them ¾ inch; it then rose to 9 inches from buffers and remained. Pulled down by 3 men in 2 minutes and 10 seconds.
12.....	52	230	15	34,822	840	650	525	0.535	1 10	Gun in recoiling came to within about 3 inches of buffers, and rose to 12 inches and remained. Pulled down by 3 men in 1 minute and 15 seconds.
12.....	53	210	3	27,393	875	625	525	0.725	1 19	Gun in recoiling came to within about 6 inches of buffers, and then rose to 13 inches and remained. Pulled down by hand in 2 minutes and 20 seconds.
12.....	54	220	10	31,504	870	625	525	0.625	1 10	Gun in recoiling came to buffers, compressing them ¾ inch, and then rose to 8 inches from buffers and remained. Pulled down by hand in 1 minute and 50 seconds.
12.....	55	180	20	23,303	850	630	525	1	1 11	Gun in recoiling came to within about 4 inches of buffers, and then rose to to 17 inches and remained Pulled down by hand in 2 minutes.
12.....	56	200	20	23,447	850	630	525	1	1 11	Gun in recoiling came within about 2 inches of buffers, and then rose to 13 inches and remained. Pulled down by hand in 2 minutes.
16.....	57	240	15	37,121	735	735	525	0.5	2 35	Gun in recoiling came to within 9 inches of buffers, and there remained. Pulled down by hand.
16.....	58	240	15	36,245	860	625	525	0.4	2 18	Gun in recoiling came to within about 12 inches of buffers, and rose to 17 inches and remained. Pulled down by hand by 2 men in 2 minutes and 25 seconds.
16.....	59	243	10	39,766	860	630	525	0.5	2 13	Gun in recoiling came to buffers, and then rose 4½ inches and remained. Pulled down by hand. Variation in charge was to determine maximum charge to use for test, the powder being irregular. In 12th and 13th rounds the gun was started up by 1 man working on crowbar and by 2 men pushing upward on elevating arms, raised about 1 foot in this way and then raised itself without assistance. Man in charge said that glands were screwed down too tight.

Date.	Round.	Powder charge.	Elevation.	Mean powder pressure.	Air pressure per inch before lifting in—		Equalized at—	Position of return valve open.	Time required to bring gun in battery.	Remarks.
					Receiver.	Cylinder.				
		Pounds.	*Degrees.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	"	′ ″	
17	60	241	15	37,541	850	710	525	0.5	0 59	Ramming apparatus lowered to permit use of hand rammer. Gun loaded by hand. Pressure equalized at 540 pounds. Air let off and pressure reduced to 525 pounds. Gun in recoiling came to within 4 inches of buffers and then rose to 9 inches and remained. Pulled down by hand.
17	61	241	10	39,057	880	625	525	0.5	1 19	Gun loaded by hand. Gun in recoiling came to within about 2 inches of buffers, then rose to 5 inches and there remained about 1 minute, when it settled 3 inches, also remaining about 1 minute, then settled to buffers.
17	62	241	10	40,013	900	615	525	0.5	1 26	Gun in recoiling came to within about 2 inches of buffers, then rose to 8 inches and remained. Pulled down by hand in 1 minute and 30 seconds.
18	63	240	10	.....	900	615	525	0.5	1 14	Gun in recoiling came to buffers and remained.
18	64	240	10	.....	920	600	525	0.5	1 18	Do.
18	65	240	10	.....	920	600	525	0.5	1 14	Do.
18	66	240	10	.....	920	595	525	0.5	1 14	Do.
18	67	240	10	.....	850	(*)	525	0.5	1 30	Do.
18	68	240	10	.....	900	590	525	0 5	1 34	Do.
18	69	240	10	.....	950	(*)	525	0.5	1 00	Do.
18	70	240	10	.....	960	(*)	525	0.5	1 10	Do.
18	71	240	10	.....	950	(*)	525	0 5	1 07	Do.
18	72	240	10	.....	950	(*)	525	0.5	1 30	Gun in recoiling came to buffers and remained. By saying that "gun came to buffers and remained" is meant that it rose slightly each time and then settled back to buffers.
31	75	240	15	38,237	750	735	525	0.5	1 51	Gun in recoiling came to within about 2 inches of buffers and then rose to 5 inches, where it remained for about 1 minute and then settled very slowly to buffers.
31	76	240	15	37,516	900	600	525	0.5	1 24	Do.
31	77	240	15	39,074	900	610	525	0.5	2 30	Gun in recoiling came to within about 2 inches of buffers and then rose to 8 inches, and there remained. A few turns on winch and gun settled to buffers.
31	78	240	20	41,602	900	610	525	0 5	1 40	Gun in recoiling came to within about 4 inches of buffers and then rose to 9 inches, and there remained. A few turns on winch and gun settled to buffers.

* Not taken.

LOADING BY HAND.

In rounds 14, 15, and 16 the gun was loaded by hand and the following times were taken.

	Rounds.		
	14.	15.	16.
	′ ″	′ ″	′ ″
Time occupied in placing projectile in shot seat	3 23	3 34	2 10
Time occupied in placing charge in powder chamber	2 45	1 47	11

This time in rounds 14 and 15 include the lifting of tray from ground to loading position and pushing charge to seat by rammer. In round 16 time for the latter operation only was taken.

The following comparative times for certain operations when performed by hand or by power were taken. Time of traversing by hand from left to right 120 degrees, seven men on handle, two men being relieved at end of each minute, 46 minutes 28 seconds. Similar time traversing by power, 54 seconds. Time occupied in elevating by hand from 5 degrees depression to 10 degrees elevation, one man at wheel and relieved at end of each minute, 12 minutes 33 seconds.

Similar elevating by power, 32 seconds. Time required to fill cylinders with air (725 pounds in each cylinder), using power, 5 hours and 14 minutes. Similar time by using hand pump, 40 men employed.

DETAILS FOR EACH HUNDRED POUNDS.

Pumping commenced at 8:34 a. m. Gauges showed 100 pounds at 9:01 a. m.; time, 27 minutes; deduction for change of relief, 53 seconds; actual time of pumping 100 pounds, 26 minutes and 7 seconds; gauge showed 200 pounds at 9:44 a. m.; time, 43 minutes; deduction for change of relief, 1 minute and 37 seconds; actual time of pumping, 42 minutes and 21 seconds; gauge showed 300 pounds at 10:30 a. m.; time, 46 minutes; deductions for rest, 3 minutes and 39 seconds; actual time of pumping, 42 minutes and 21 seconds; gauge showed 400 pounds at 11:34 a. m.; time, 1 hour and 4 minutes; deductions for rest, 26 minutes and 11 seconds; actual time pumping, 37 minutes and 49 seconds; pumping ceased at 12 m.; gauge showed 423 pounds.

Pumping resumed at 1 p. m., pressure unchanged. Gauge showed 500 pounds at 2:35 p. m.; time, 2 hours and 1 minute; deductions for rest, 47 minutes and 49 seconds; actual time pumping, 1 hour, 13 minutes, and 11 seconds; gauge showed 600 pounds at 4:52 p. m.; time, 2 hours and 17 minutes; deduction for rest, 1 hour, 14 minutes and 31 seconds; actual time pumping, 1 hour, 2 minutes, and 29 seconds. At 5 p. m., pressure 605 pounds, pumping ceased; during night pressure fell 10 pounds, due to temperature.

Pumping resumed at 8:06 a. m. Gauge showed 700 pounds at 10:27 a. m.; time, 2 hours and 29 minutes; deduction for rest, 1 hour, 30 minutes, and 6 seconds; actual time pumping, 58 minutes and 54 seconds; gauge showed 735 pounds at 11:43 a. m.; time, 1 hour and 16 minutes; deduction for rest, 30 minutes; actual time pumping, 46 minutes.

Total time pumping, 6 hours, 28 minutes, and 14 seconds; total time rest, 4 hours, 34 minutes, and 46 seconds; time consumed, 11 hours and 3 minutes.

This pump worked very hard and it was about all that the men employed could do to work it, which accounts for the length of rests. A relief valve was used so that pump only worked half capacity the latter part of the first day and until cylinders were filled.

The hand pump, used to fill the cylinders with air, was furnished by the company. At the first trial with this pump the hub of high-pressure crank broke, due to weakness in iron; as a result the connecting rod of the low-pressure pump also broke. The pump was repaired by the company, but at all times worked very hard and it was all the 40 men employed could do to work it.

TEST FOR RAPIDITY.

The test for rapidity was made during the firing of rounds 17 to 26 both inclusive.

Firing commenced at 1:21 p. m. Firing discontinued at 3:02 p. m. Time of firing, 1 hour and 41 minutes.

Deductions:	*h.*	*m.*	*s.*
Reduce pressure from 540 to 525 pounds		4	10
Sticking of breechblock		0	12
Waiting for powder		0	42
Fixing primer		0	6
Closing breechblock		0	38
Closing breechblock		1	55
Examining breechblock		1	00
Opening breechblock		1	12
Picking up powder		0	35
Filing cups		23	15
Ship in the way		1	00
Total deductions		34	45
Actual time consumed in firing 10 rounds	1	6	15
Time from beginning of first round to end of second round		14	23
Time between second and third rounds		8	30
Time between third and fourth rounds		7	35
Time between fourth and fifth rounds		6	35
Time between fifth and sixth rounds		6	23
Time between sixth and seventh rounds		5	18
Time between seventh and eighth rounds		5	38
Time between eighth and ninth rounds		6	17
Time between ninth and tenth rounds		5	36
Total	1	6	15

During the course of firings preliminary to the official test the following changes were made in the details of the carriage:

December 9, 1891.—Screw bolt holding left elevating arm to breech hoop broke during recoil. Left elevating arm bent by striking carriage. Method of attachment of elevating arms to breech hoop changed so that screw bolts were not strained at recoil.

February 26, 1892.—Since last firing, December 9, 1891, the carriage has been modified as follows: A pipe provided with return and check valves connected bottom of main cylinder with top of same. The tubes through head, connecting space under piston head with annular space above, have been closed. (See report March 17, 1892.)

March 22, 1892.—Since last firing, February 27, 1892, new center and return valves with larger aperture were applied to carriage. (See report March 26, 1892.)

March 25, 1892.—Since last firing, March 24, 1892, right elevating arm was chipped to allow it to pass base of buffers when returning to battery. Left arm was also chipped before the last round.

June 6, 1892.—Since last firing, March 29, 1892, center valve in main cylinder removed. Defective bronze ring of main cylinder replaced by steel ring. New composition gland for stuffing box of main cylinder. Spiral spring from arm of shot tray attached to gun-loading cylinder. Hand winch added to rear part of carriage for bringing gun down against buffers. (See report June 15, 1892.)

August 12, 1892.—Since last firing, July 15, 1892, new bolts added to platform, as described on page 1 of this report. A new reverse lever attached instead of wheels.

SPECIAL NOTE.

After the system had been charged about four months the air began to leak through the bronze ring on the ram of the main cylinder, rendering the carriage unserviceable. The defect was corrected and system was again charged June 5, 1892, and remained charged without material change of pressure until August 17, 1892, at which time the air was purposely let out. From June 25 to July 9, 1892, a reduction of 5 pounds in pressure of entire system was noted.

July 9, 1892.—A $\frac{3}{4}$-inch hexagonal nut placed on rear transom housing was not shaken off by shock of discharge.

Seventy-eight rounds in all have been fired from this carriage, as follows:

	Rounds.
Preliminary to official test	28
In testing powder	20
Official test	30
Total	78

Your attention is respectfully invited to my reports of March 17 and 26, April 1 and June 15, 1892, giving full details of the rounds fired preliminary to the official test.

Very respectfully, your obedient servant,

FRANK HEATH,
Capt., Ord. Dept., U. S. Army, Commanding.

The CHIEF OF ORDNANCE, U. S. ARMY,
Washington, D. C.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 12.

ESTIMATE OF APPROPRIATION FOR THE BOARD OF ORDNANCE AND FORTIFICATION.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

The annual estimate of appropriation for the Board of Ordnance and Fortification for the fiscal year ending June 30, 1894, submitted by the Secretary of War.

DECEMBER 6, 1892.—Referred to the Committee on Appropriations and ordered to be printed.

TREASURY DEPARTMENT,
December 5, 1892.

SIR: I have the honor to transmit herewith, for the consideration of Congress, an annual estimate of appropriation for the Board of Ordnance and Fortification for the fiscal year ending June 30, 1894, submitted this day by the Secretary of War, amounting to $270,207.97.

Respectfully, yours,

CHARLES FOSTER,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

WAR DEPARTMENT,
Washington City, December 5, 1892.

SIR: I have the honor to forward herewith for transmission to Congress estimate of annual appropriation ($270,207.97) for "Board of Ordnance and Fortification," required for the use of the War Department for the service of the fiscal year ending June 30, 1894.

Very respectfully,

J. M. SCHOFIELD,
Major-General, U. S. Army, Acting Secretary of War.

The SECRETARY OF THE TREASURY.

BOARD OF ORDNANCE AND FORTIFICATION,
War Department, December 1, 1892.

SIR: The Board of Ordnance and Fortification has the honor to recommend that a request may be made to Congress for an appropriation of $270,207.97, for expenditures under the direct supervision of the Board of Ordnance and Fortification to enable the Board to make all needful and proper purchases, experiments, and tests to ascertain, with a view to their utilization by the Government, the most effective guns, small arms, cartridges, projectiles, fuses, explosives, torpedoes, armor plates, and other implements and engines of war, and to purchase or cause to be manufactured, under authority of the Secretary of War, such guns, carriages, armor plates, and other war materials and articles as may, in the judgment of the Board, be necessary in the proper discharge of the duty devolved upon it by the act approved September 22, 1888; to pay the salary of the civilian member of the Board of Ordnance and Fortification provided by the act of February 24, 1891, and for the necessary traveling expenses of said member when traveling on duty as contemplated in said act; for payment of the necessary expenses of the Board, including a per diem allowance to each officer detailed to serve thereon when employed on duty away from his permanent station of $2.50 a day; and for the test of experimental guns and carriages procured in accordance with the recommendations of the Board of Ordnance and Fortification.

It would seem advisable to invite the attention of Congress to the fact that the act making appropriations for fortifications, etc., approved September 22, 1888, provides—

> Whenever any party shall present for test a completed cast-iron breech-loading mortar of twelve inches caliber, of about thirty-two thousand pounds weight, with a proper supply of ammunition therefor, not exceeding two hundred rounds, such mortar shall be tested in the presence of the party presenting the same, and should it be shown to the satisfaction of the Board by such tests to be equal in accuracy, range, power, endurance, material, and general efficiency to the twelve-inch cast-iron, steel-hooped, breech-loading mortar now at Sandy Hook, the mortar and ammunition shall be paid for, including cost of transportation, and contract be made for a further supply of not less than fifty and not more than one hundred, at such reasonable cost as the Board herein provided for shall determine, not to exceed six thousand five hundred dollars each. The entire number to be delivered in one year from date of contract. Said mortar and all which may be contracted for under this provision shall be subject to inspection at each stage of manufacture.
>
> Whenever any party shall present for test a completed single-charge breech-loading steel gun of ten or twelve inches caliber, and of weight and dimensions to be prescribed by the Board with the proper supply of ammunition for the test of the same, such gun shall, in the presence of the party presenting it, be subject to such tests as the Board shall have prescribed; and should such gun be shown to the satisfaction of the Board by such tests to fulfill the requirements previously prescribed in respect to accuracy, range, power, endurance, and general efficiency, the gun and ammunition shall be paid for at a fair valuation, including cost of transportation, and contract shall be made at a price reasonable in the opinion of the Board, with the party presenting the best of such guns, for a further supply of similar guns, to be subjected to the usual service test before acceptance, the experimental gun and all guns purchased hereunder to be subject to inspection at each stage of manufacture, as follows, namely: For not less than fifty ten-inch steel guns; and for not less than fifty twelve-inch steel guns,

and pledges the United States to the amount of $6,500,000.

The Board desires to emphasize the recommendation made in its annual report, that so much of this section as pledges the United States to the purchase of 50 cast-iron mortars and fifty 10-inch and fifty 12-inch guns, be repealed, as it has been demonstrated that cast iron can not compete successfully with steel for the mortars; and the 100 seacoast guns have been contracted for, under the acts of 1890 and 1891; and

moreover, since the date of the enactment the gun factory has been completed, and is fully able to supply the demand for these guns. This action would still encourage the inventor to produce a single gun, and if it successfully pass the required tests, allow of the payment for the same.

For the Board.

Very respectfully,

J. M. SCHOFIELD,
Major-General, U. S. A.,
President of the Board.

The SECRETARY OF WAR.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1894, by the War Department.

General objects (title of appropriation) detailed objects of expenditure and explanations.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1893.
Board of Ordnance and Fortification:		
For expenditures under the direct supervision of the Board of Ordnance and Fortification to enable the Board to make all needful and proper purchases, experiments, tests, etc., as fully explained in the accompanying letter of J. M. Schofield, Major-General, U. S. A., president of the Board. (Sept. 22, 1888, vol. 25 p., 489 sec. 1; July 23, 1892, vol. 27, p. 260, sec. 1).....	$270,207.97	$210,000.00

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 13.

PAY OF ASSISTANT CUSTODIANS AND JANITORS.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

URGING

That an additional appropriation be made as early as practicable for the pay of assistant custodians and janitors for the current fiscal year.

DECEMBER 7, 1892.—Referred to the Committee on Appropriations and ordered to be printed.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to invite attention to the appropriation "Pay of assistant custodians and janitors" for the current fiscal year, which is insufficient to meet the demands of the service, and to urge that an additional sum of $100,000 be appropriated as early as practicable, to avoid an embarrassment of the service which otherwise will be inevitable.

The estimates of the Department for this service for the current fiscal year were $700,000, which sum was reduced by Congressional action to $580,000, an amount inadequate to provide for the most ordinary care of the buildings. During the fiscal year ending June 30, 1892, with only 193 public buildings, the appropriation was $625,000, an amount insufficient to insure proper cleanliness, protection, and other service conducive to an economical and satisfactory administration. During the current fiscal year the number will have been increased to 209 buildings. The appropriation has been apportioned with great care, but it is found that it is insufficient to supply the service needed, and should the relief asked for not be provided the Department will be compelled within the next thirty days to discharge not less than 270 employés, and the occupancy of several new buildings, now approaching completion, namely, at Chattanooga, Tenn., Birmingham, Ala., Helena, Ark., Hoboken, N. J., Lafayette, Ind., Jackson, Mich., Port Townsend, Wash., Atchison, Kansas, and Eastport, Me., will have to be deferred.

To curtail the number of employés would so cripple the service that the transaction of the business of the post-offices, United States courts, and collectors of customs and internal revenue would be seriously

embarrassed. It would lead to the discontinuance of the use of elevators, and compel the discharge of watchmen and laborers and some of the employés connected with the electric light and heating plants, thereby materially interfering with the proper lighting and heating of the buildings.

The following named buildings are lighted either wholly or in part by electric-lighting plants located therein, which are operated by employés whose salaries are paid from the appropriation "Pay of assistant custodians and janitors," viz: Custom-houses at Chicago, Ill.; Cincinnati, Ohio; New Orleans, La.; St. Louis and Kansas City, Mo.; the post-office and sub-treasury, Boston, Mass., and the court-house and post-office, Philadelphia, Pa. These buildings are among the largest and most important under the control of this Department. The light supplied is of a superior quality, and the introduction of the plants into the buildings has greatly reduced the cost of their illumination.

The accompanying statement shows the number of persons employed at each of the different buildings during the last and current fiscal years, and the aggregate of the salaries paid, together with the average. The average salary paid to some of the employés is less than the rates paid by private individuals or corporations for similar service. All items of expenditure authorized from the appropriation have been carefully examined and every possible saving accomplished, and yet the Department is unable to keep within the limits of the amount allowed. The sum asked for is the lowest possible amount that should be granted, as the aggregate salaries of the employés at present employed, if continued until June 30, 1893, would exceed the present appropriation by about $81,000, and $19,000 is the lowest possible limit that can be placed upon the amount that will be required to man and care properly for the buildings now approaching completion.

Respectfully yours,

CHARLES FOSTER,
Secretary.

Hon. CHARLES F. CRISP,
Speaker of the House of Representatives.

Number of employés assigned to, and the aggregate amounts of salaries paid, in United States buildings under the control of the Treasury Department during the fiscal years 1892 and 1893.

Place.	1892.		1893.	
	Employés.	Amount.	Employés.	Amount.
Aberdeen, Miss	2	$1,140.00	2	$1,140.00
Abingdon, Va	2	1,140.00	2	1,140.00
Albany, N. Y	10	6,514.00	10	6,514.00
Alexandria, Va	2	1,200.00	2	1,200.00
Asheville, N. C	*2	122.00	2	1,140.00
Astoria, Oregon	2	870.00	2	870.00
Atlanta, Ga	8	4,085.00	8	4,640.00
Auburn, N. Y	3	1,820.00	4	2,445.00
Augusta, Ga	3	1,560.00	3	1,560.00
Augusta, Me	5	2,920.00	5	2,920.00
Austin, Tex	2	1,200.00	2	1,200.00
Baltimore, Md., court-house and post-office	38	20,766.00	38	21,680.00
Baltimore, Md., custom-house	17	8,920.00	17	8,560.00
Bangor, Me	2	1,200.00	2	1,200.00
Barnstable, Mass	1	350.00	1	350.00

*Forces assigned to duty some time subsequent to the beginning of the fiscal year or buildings only partially equipped with employés.

Number of employés assigned to, and the aggregate amounts of salaries paid, in United States buildings, etc.—Continued.

Place.	1892.		1893.	
	Employés.	Amount.	Employés.	Amount.
Bath, Me	1	$540.00	1	$540,00
Belfast, Me	1	540.00	1	540.00
Binghampton, N. Y	3	1,680.00	3	1,680.00
Boston, Mass., custom-house	5	3,640.00	5	3,640.00
Boston, Mass., post-office and subtreasury	50	31,705.00	50	31,605.00
Bridgeport, Conn	*2	618.00	2	1,260.00
Bristol, R. I	1	240.00	1	280.00
Brooklyn, N, Y	*19	2,580.00	25	14,855.00
Buffalo, N. Y	10	4,353.00	10	5,600.00
Burlington, Vt	2	1,200.00	2	960.00
Cairo, Ill	3	1,574.00	5	3,880.00
Carson City, Nev	3	2,280.00	3	2,280.00
Castine, Me	1	540.00	1	540.00
Charleston, S. C., custom-house	4	1,980.00	4	1,980.00
Charleston, S. C., post-office	3	1,380.00	3	1,380.00
Charleston, W. Va	2	1,260.00	2	1,260.00
Charlotte, N. C	3	1,620.00	3	1,550.00
Chicago, Ill. (appraiser's stores)	*9	4,120.00	10	6,970.00
Chicago, Ill,, (custom-house)	62	37,628.00	62	37,415.00
Cincinnati, Ohio	52	29,152.00	52	29,170.00
Clarksburg, W. Va	3	1,620.00	3	1,470.00
Cleveland, Ohio	8	4,640.00	8	4,640.00
Columbia, S. C	2	1,100.00	2	1,100.00
Columbus, Ohio	5	2,940.00	5	2,940.00
Concord, N. H	4	2,010.00	4	2,010.00
Council Bluffs, Iowa	6	3,170.00	6	3,170.00
Covington, Ky	4	1,740.00	4	1,740.00
Dallas, Tex	3	1,065.00	2	1,020.00
Danville, Va	2	870.00	2	870.00
Dayton, Ohio	*3	739.00	3	1,470.00
Des Moines, Iowa	10	4,390.00	9	4,390.00
Detroit, Mich	4	2,650.00	4	2,600.00
Dover, Del	1	720.00	1	720.00
Dubuque, Iowa	3	1,680.00	3	1,680.00
Ellsworth, Me	1	540.00	1	540.00
Erie, Pa	4	2,190.00	4	2,190.00
Evansville, Ind	4	1,920.00	4	1,920.00
Fall River, Mass	2	1,440.00	2	1,440.00
Fort Scott, Kans	2	1,200.00	2	1,290.00
Fort Smith, Ark	4	2,550.00	4	2,550.00
Fort Wayne, Ind	6	3,180.00	6	3,240.00
Frankfort, Ky	2	1,260.00	2	1,260.00
Galena, Ill	1	540.00	1	540.00
Galveston, Tex. (new)	2	1.199.00	3	1,362.00
Galveston, Tex. (old)	2	875.00	2	875.00
Gloucester, Mass	1	600.00	1	600.00
Grand Rapids, Mich	3	1,680.00	3	1,620.00
Greensboro, N. C	3	1,589.00	3	1,680.00
Greenville, S. C	*1	100.00	1	600.00
Hannibal, Mo	3	1,650.00	3	1,650.00
Harrisburg, Pa	4	2,010.00	4	2,010.00
Harrisonburg, Va	3	1,455.00	3	1,455.00
Hartford, Conn	4	2,820.00	4	2,820.00
Houston, Tex	2	960.00	2	960.00
Huntsville, Ala	3	1,560.00	3	1,560.00
Indianapolis, Ind	8	4,880.00	8	4,880.00
Jackson, Miss	3	1,750.00	3	1,750.00
Jackson, Tenn	2	840.00	2	840.00
Jefferson, Tex	1	600.00	1	600.00
Jefferson City, Mo	3	1,920.00	3	1,920.00
Jersey City, N. J	4	1,980.00	4	1,980.00
Kalamazoo, Mich	*1	218.00	1	600.00
Kansas City, Mo	8	5,340.00	8	5,340.00
Keokuk, Iowa	3	1,470.00	3	1,470.00
Key West, Fla	*1	458.00	1	540.00
Knoxville, Tenn	3	1,920.00	3	1,920.00
La Crosse, Wis	4	2,070.00	4	2,040.00
Lancaster, Pa	*1	27.00	2	960.00
Leavenworth, Kans	5	2,670.00	5	2,640.00
Lexington, Ky	4	2,250.00	4	2,250.00
Lincoln, Nebr	3	1,980.00	3	1,920.00
Little Rock, Ark	3	1,920.00	3	1,920.00
Louisville, Ky., custom-house and post-office	*6	522.00	23	9,483.00
Louisville, Ky., custom-house	7	4,155.00	7	4,145.00
Lynchburg, Va	3	1,621.00	3	1,340.00
Machias, Me	1	540.00	1	540.00

* Forces assigned to duty some time subsequent to the beginning of the fiscal year or buildings only partially equipped with employés.

Number of employés assigned to, and the aggregate amounts of salaries paid, in United States buildings, etc.—Continued.

Place.	1892.		1893.	
	Em-ployés.	Amount.	Em-ployés.	Amount.
Macon, Ga	5	$2,250.00	5	$2,250.00
Madison, Wis	3	1,485.00	3	1,485.00
Manchester, N. H	2	1,380.00	2	1,380.00
Marquette, Mich	2	1,200.00	2	1,200.00
Memphis, Tenn	6	3,650.00	6	3,650.00
Middletown, Conn	1	720.00	1	720.00
Milwaukee, Wis	5	2,962.00	5	2,885.00
Minneapolis, Minn	10	6,795.00	10	6,800.00
Mobile, Ala	4	2,640.00	4	2,640.00
Monroe, La	*2	367.00	1	600.00
Montgomery, Ala	4	2,460.00	4	2,460.00
Montpelier, Vt	2	1,200.00	2	1,200.00
Nashville, Tenn	8	4,280.00	8	4,280.00
Nebraska City, Nebr	3	1,920.00	3	1,920.00
New Albany, Ind	2	1,380.00	2	1,380.00
Newark, N. J	3	1,530.00	3	1,530.00
New Bedford, Mass	1	660.00	1	660.00
Newburyport, Mass	1	540.00	1	540.00
New Haven, Conn	3	1,700.00	3	1,700.00
New London, Conn	1	540.00	1	540.00
New Orleans, La	30	19,050.00	28	18,810.00
Newport, R. I	1	660.00	1	660.00
New York City (barge office)	12	6,360.00	12	6,360.00
New York City (custom-house and post-office)	70	41,788.00	62	39,540.00
New York City (custom-house)	28	15,215.00	25	15,425.00
New York City (subtreasury)	9	4,260.00	9	4,260.00
Norfolk, Va	2	1,300.00	2	1,300.00
Ogdensburg, N. Y	1	660.00	1	660.00
Omaha, Nebr	4	2,400.00	4	2,340.00
Opelousas, La	*1	328.00	1	600.00
Oshkosh, Wis	3	1,620.00	3	1,620.00
Oswego, N. Y	2	1,140.00	2	1,140.00
Ottumwa, Iowa	2	1,140.00	2	1,140.00
Owensboro, Ky	1	660.00	2	1,010.00
Oxford, Miss	2	1,140.00	2	1,140.00
Paducah, Ky	2	1,320.00	2	1,320.00
Parkersburg, W. Va	5	2,790.00	5	2,790.00
Pensacola, Fla	3	1,380.00	2	1,200.00
Peoria, Ill	5	2,910.00	6	3,530.00
Petersburg, Va	2	1,320.00	1	720.00
Philadelphia, Pa., appraisers stores	4	2,610.00	4	2,610.00
Philadelphia, Pa,, custom-house and post-office	48	29,300.00	48	29,300.00
Philadelphia, Pa., custom-house	7	3,950.00	7	3,950.00
Pittsburg, Pa., custom-house and post-office	*24	5,356.00	24	14,509.00
Pittsburg, Pa., custom-house	11	3,977.00	1	600.00
Plattsburg, N. Y	1	600.00	1	600.00
Port Huron, Mich	3	1,410.00	3	1,410.00
Portland, Me., custom-house and post-office	3	1,770.00	3	1,770.00
Portland, Me., custom-house	3	2,040.00	3	2,040.00
Portland, Oregon	4	2,280.00	4	2,280.00
Portsmouth, N. H	2	1,200,00	2	1,200.00
Poughkeepsie, N. Y	3	1,860.00	3	1,860.00
Providence, R. I	4	2,520.00	4	2,520.00
Quincy, Ill	4	2,400,00	4	2,400.00
Raleigh, N. C	3	1,410.00	3	1,410.00
Reading, Pa	3	1,470.00	3	1,470.00
Richmond, Va	5	3,180.00	5	3,180.00
Rochester, N. Y	8	4,465.00	8	4,325.00
Rockland, Me	1	600.00	1	600.00
Rutland, Vt	2	850.00	2	870.00
St. Augustine, Fla	1	600.00	1	600.00
St. Joseph, Mo	7	4,580.00	7	4,280.00
St. Louis, Mo., appraiser's stores	7	3,620.00	5	2,867.00
St. Louis, Mo., custom-house	48	28,880.00	48	28,955.00
St. Paul, Minn	6	3,890.00	6	3,890.00
Salem, Mass	1	540.00	1	540.00
San Antonio, Tex	4	1,939.00	4	1,890.00
Sandusky, Ohio	1	600.00	1	600.00
San Francisco, Cal., appraiser's stores	10	5,960.00	10	5,960.00
San Francisco, Cal., custom-house	3	1,800.00	3	1,800.00
San Francisco, Cal., subtreasury	3	1,200.00	3	1,200.00
Sante Fe, N. Mex	4	2,250.00	4	2,250.00
Savannah, Ga	3	1,560.00	3	1,560.00
Shreveport, La	2	1,140.00	2	1,140.00
Sitka, Alaska	1	360.09	1	360.00
Sedalia, Mo	*1	137.00	1	600.00

* Forces assigned to duty some time subsequent to the beginning of the fiscal year or buildings only part(ally equipped with employés.

Number of employés assigned to, and the aggregate amounts of salaries paid, in United States buildings, etc.—Continued.

Place.	1892.		1893.	
	Employés.	Amount.	Employés.	Amount.
Springfield, Ill	5	$2,780.00	5	$2,780.00
Springfield, Mass	3	1,470.00	3	1,470.00
Springfield, Ohio	2	1,100.00	2	900.00
Suspension Bridge, N. Y	1	720.00	1	720.00
Statesville, N. C	*2	179.00	2	900.00
Syracuse, N. Y	7	4,380.00	7	4,380.00
Terre Haute, Ind	3	1,680.00	3	1,680.00
Texarkana, Ark	*1	185.00	1	558.00
Toledo, Ohio	7	3,970.00	7	3,970.00
Topeka, Kans	4	2,390.00	4	2,390.00
Trenton, N. J	4	1,890.00	4	1,890.00
Tyler, Tex	2	965.00	2	965.00
Utica, N. Y	4	2,010.00	4	2,010.00
Vicksburg, Miss	*5	2,004.00	4	2,010.00
Waco, Tex	2	930.00	2	930.00
Waldoboro, Me	1	210.00	1	240.00
Watertown, N. Y	*2	210.00	1	600.00
Wheeling, W. Va	2	1,340.00	2	1,340.00
Wichita, Kans	3	1,920.00	5	2,743.00
Williamsport, Pa	3	1,507.00	3	1,530.00
Wilmington, Del	2	1,200.00	2	1,200.00
Wilmington, N. C., custom-house and post-office	2	930.00	3	1,230.00
Wilmington, N. C., custom-house	1	600.00	1	600.00
Windsor, Vt	1	360.00	1	360.00
Winona, Minn	*2	1,120.00	2	1,260.00
Wiscasset, Me	1	360.00	1	360.00
Incidental expenses		26,913.62		
Balance		122.38		
New buildings.				
Brownsville, Tex			*1	385.00
Denver, Colo			*4	1,435.00
El Paso, Tex			*1	540.00
Los Angeles, Cal			1	660.00
New Bedford (new)			*1	385.00
Portsmouth, Ohio			*1	460.00
				639,666.00
Incidental expenses				22,000.00
Total	1,094	625,000.00	1,105	661,666.00

*Forces assigned to duty some time subsequent to the beginning of the fiscal year or buildings only partially equipped with employés.

RECAPITULATION.

Appropriation, 1892		$625,000.00
Salaries paid, 1892	$597,964.00	
Hauling ashes, washing towels, and sprinkling streets	26,913.62	
Balance unexpended	122.38	
		625,000.00
Fiscal year 1893:		
Salaries	639,666.00	
Hauling ashes, washing towels, and sprinkling streets	22,000.00	
		661,666.00
Amount of appropriation	580,000.00	
Expenses in excess of the appropriation if continued until June 30, 1893	81,666.00	
		661,666.00

Number of employés, 1893, 1,105.
Average salary of each per annum, $575.30.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 14.

PUBLIC DOCUMENTS.

LETTER

FROM

THE SECRETARY OF THE INTERIOR,

TRANSMITTING

The report regarding the receipt, distribution, and sale of public documents on behalf of the Government by the Department of the Interior, 1891–'92.

DECEMBER 7, 1892.—Referred to the Committee on Expenditures in the Interior Department and ordered to be printed.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith, in compliance with the requirements of section 445 of the Revised Statutes and of joint resolution of June 3, 1887, the report of the superintendent of documents, showing the number of public documents received by this Department from the Public Printer and from other sources during the fiscal year ended June 30, 1892, for distribution and sale on behalf of the Government, and the disposition made of them.

To this report is added a finding list, intended to facilitate reference to public documents, as these are found in the set of Congressional publications arranged and classified by Congress and session, which it is thought will be of service to all who have occasion often to consult these publications.

Very respectfully,

JOHN W. NOBLE,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

DEPARTMENT OF THE INTERIOR,
Washington, D. C., December 5, 1892.

SIR: I submit herewith for transmission to Congress my annual report regarding the receipt, distribution, and sale of public documents for the fiscal year ended June 30, 1892.

To this report is appended a finding list, showing where, in the list of Congressional documents, the individual volumes of certain series of Government publications are found. As many of these series extend over a period of more than forty years, reference to any single volume as embraced in the Congressional documents, which are classified by Congress and session, is often attended with inconvenience and delay. It is believed that this finding list will very materially aid such reference and therefore be of service to those who have frequent occasion to consult public documents.

Very respectfully,

JOHN G. AMES,
Superintendent of Documents

The SECRETARY OF THE INTERIOR.

DOCUMENTS RECEIVED AND DISTRIBUTED BY THE DEPARTMENT OF THE INTERIOR.

The following publications have been received by the Department of the Interior for distribution on behalf of the Government, viz:

The journals, executive documents, miscellaneous documents, and reports of the two Houses of Congress, bound in leather.

The reports of the Secretary of the Interior and of the subordinate officers of the Department.

The reports of the Supreme Court.

The Official Register of the United States.

CONGRESSIONAL DOCUMENTS.

Of these publications there were received as follows:

Senate executive documents	2,940
Senate miscellaneous documents	1,680
Senate reports	1,680
House journals	435
House executive documents	19,258
House miscellaneous documents	13,848
House reports	6,580
Total	46,421

being 420 of each Senate publication and 470 of each House publication delivered, excepting the journals, of which 435 copies were received.

These documents have been distributed as follows: To each State and territorial library, one set; to the several institutions in each State and Territory which have been designated as depositories of public documents, in accordance with the provisions of section 501 of the Revised Statutes, one set each.

The depositories of public documents remain as enumerated in my report of January 8, 1892, excepting that the following have been dropped from the list:

Library Association, Americus, Ga.
Young Men's Library Association, West Point, Ga.
Ladies' Library Association, Kankakee, Ill.
Free Public Library, Topeka, Kans.
Public Library, Monroe, La.
Enoch Pratt Free Library, Baltimore, Md.
Young Men's Mercantile Library Association, Cincinnati, Ohio.
Cumberland University, Lebanon, Tenn.
Grange Library, Prairie Lea, Tex.

And the following have been added thereto:

Young Men's Library Association, Rome, Ga.
Hanover College, Hanover, Ind.
Howard Memorial Library, New Orleans, La.
Missoula Public Library, Missoula, Mont.

REPORTS OF THE DEPARTMENT AND MISCELLANEOUS DOCUMENTS.

Of the reports of the Secretary of the Interior and of the several subordinate officers of the Department, and of other miscellaneous publications of the Government, 55,921 were received during the last fiscal year. Many of these documents were in pamphlet form. All were issued for the official use of the Department and its several bureaus, and for their discretionary distribution.

In addition there were received 2,710 volumes of decisions of the Department relating to public lands and 1,143 volumes of the decisions of the Department relating to pensions, which were published exclusively for sale by this office.

OFFICIAL REGISTER OF THE UNITED STATES.

The Official Register for 1891 was prepared and published under my supervision during the last fiscal year. This work comprises two imperial octavo volumes, aggregating 2,604 pages. They record the name, office, and salary of all the civil officers and employés of the Government, and also of officers in the military and naval service of the United States, together with the state or country in which each was born, the State from which each was appointed to office, and the place where each was employed. The number of these officers and employés on July 1, 1891, as shown by the Register, was about 174,000. Of these 23,144 were employed in the executive departments and other Government offices in Washington, of whom 17,039 were males and 6,105 females. More than 104,000 persons were employed in the postal service of the United States. Twenty-five hundred copies each of the two volumes of the Register were received from the Public Printer, distribution of which has been made to members of Congress, to the Executive Departments and offices of the Government and to libraries, in accordance with existing provisions of law.

CENSUS REPORTS.

Of the Census of 1890 only one volume has yet been received from the Public Printer, viz: Report on the Mineral Industries of the United States. It is, however, expected that other volumes will follow in rapid succession as soon as Congress shall make definite provision as to what reports shall be printed and the number of copies of the same to be issued. Partial provision for this object has indeed been made, but the action already taken by Congress will doubtless be supplemented by the passage early in the present session of the bill providing for the printing and distribution of the reports ef the Eleventh Census, which passed the House of Representatives during the last session.

This bill is intended to supersede previous enactments. It covers the entire series of volumes and makes full and adequate provision for their publication. It is therefore hoped that in the interest of all concerned it will receive the further consideration of Congress and become a law, either in its present or in a modified form, at the earliest practicable day.

SUPREME COURT REPORTS.

Three hundred and seventy-six copies each of volumes 140 to 143 of United States reports were received during the fiscal year 1891–'92, which were distributed in accordance with the provisions of section

683 of the Revised Statutes and of an act of Congress approved February 12, 1889.

Attention is once more called to the importance of some action on the part of Congress providing for supplying these reports to officers of the Government and to United States courts that are yet unsupplied. For example: No provision is now made for furnishing the assistant secretaries of the several Executive Departments of the Government with these reports, and yet it is probable that most of these officers have occasion to use them as frequently as the secretaries themselves. They must, therefore, be put to great inconvenience or must provide themselves with these volumes either from their own private funds or from some general appropriation made for the Departments. It would seem that in the case of such officers there is no economy in declining to provide for them in this matter. In addition to these officers there are now quite a number of United States courts that are still without these reports and that are appealing to the Department for them. The same reasons which induce Congress to make appropriation for the rest of the courts of the United States would seem to apply with equal force to these.

It would require but a small additional appropriation each year to enable the Department to furnish all these officers and courts with the volumes required for their use. It is therefore hoped that such provision may be made during the present session.

SALE OF PUBLIC DOCUMENTS.

The following statement shows the number and price of the several documents sold under the provisions of joint resolution approved March 3, 1887, authorizing the Secretary of the Interior to sell at cost any publications of the Government available for this purpose:

	Copies.	Price per copy.	Total.
Official Register of the United States, 1889:			
Volume 1	2	$1.35	$2.70
Volume 2	5	1.55	7.75
Official Register of the United States, 1891:			
Volume 1	40	1.40	56.00
Land Decisions:			
Volume 1	64	1.05	67.20
Volume 2	62	1.15	71.30
Volume 3	61	1.07	65.27
Volume 4	69	1.15	79.35
Volume 5	63	1.05	66.15
Volume 6	68	1.45	98.60
Volume 7	79	1.10	86.90
Volume 8	87	1.16	100.92
Volume 9	93	1.15	106.95
Volume 10	115	1.15	132.25
Volume 11	155	1.10	170.50
Volume 12	276	1.15	317.40
Volume 13	206	1.15	236.90
Volume 13, signatures, unbound	143	1.00	143.00
Volume 14, signatures, unbound	154	1.00	154.00
Digest of Volumes 1 to 10	73	1.00	73.00
Pension decisions:			
Volume 1	26	1.10	28.60
Volume 2	28	1.00	28.00
Volume 3	42	1.00	42.00
Volume 4	78	1.10	85.80
Volume 5, signatures, unbound	43	1.00	43.00
Report of the Public Lands Commission, 4 volumes	13	2.50	32.50
Reports of the Tenth Census:			
Final volumes:			
Volume 1, Statistics of Population	1	1.50	1.50
Volume 2, Statistics of Manufactures	3	1.50	4.50
Volume 3, Statistics of Agriculture	1	1.50	1.50

	Copies.	Price per copy.	Total.
Reports of the Tenth Census—Continued.			
Final volumes—Continued.			
Volume 7, Valuation, Taxation, and Public Indebtedness	2	$1.35	$2.70
Volume 9, Forest Trees of North America and portfolio of maps	27	2.00	54.00
Volume 10, Petroleum, Coke, and Building Stones	3	1.75	5.25
Volume 11, Mortality and Vital Statistics (part 1)	1	1.20	1.20
Volume 12, Mortality and Vital Statistics (part 2)	1	1.60	1.60
Volume 13, Statistics and Technology of the Precious Metals	4	1.00	4.00
Volume 14, Mining Laws of the United States	2	1.10	2.20
Volume 15, Mining Industries of the United States	7	2.00	14.00
Volume 16, Water Power of the United States (part 1)	6	1.25	7.50
Volume 17, Water Power of the United States (part 2)	6	1.00	6.00
Volume 21, Defective, Dependent, and Delinquent Classes	1	.75	.75
Volume 22, Power and Machinery used in Machinery and Ice Manufacture	1	.85	.85
Monographs:			
Petroleum and Its Products	7	.60	4.20
Population, Industries, and Resources of Alaska	2	.40	.80
Shipbuilding Industry of the United States	1	.30	.30
Seal Islands of Alaska	6	.25	1.50
Manufacture of Coke	6	.20	1.20
Culture and Curing of Tobacco	1	.25	.25
Machine Tools and Wood-WorkingMachinery	3	.40	1.20
Proceedings of the National Museum, volume 13	1	.85	.85
Bulletins of the National Museum:			
Volume 1	1	2.00	2.00
Synopsis of Fishes of North America	1	2.87	2.87
Catalogue of the Collection to Illustrate the Animal Resources and the Fishes of the United States	1	1.09	1.09
Preliminary Catalogue of Shell-Bearing Marine Mollusks, etc	1	1.50	1.50
U. S. Geological Survey (Hayden):			
Annual Reports:			
1874 (full morocco)	3	4.50	13.50
1875 (half morocco)	3	3.10	9.30
1878	5	3.52	17.60
Bulletins:			
Volume 5, No 4	1	1.20	1.20
Monographs:			
Fresh-Water Rhizopods	1	3.86	3.86
Geometrid Moths	1	5.00	5.00
Miscellaneous:			
Atlas of Colorado	23	5.50	126.50
North American Pinnipeds	2	.60	1.20
Fur-Bearing Animals	1	2.00	2.00
Portfolio of maps, 1878	1	1.00	1.00
U. S. Geological and Geographical Survey of the Rocky Mountain Region (Powell):			
Geology of the Black Hills of Dakota and atlas (half morocco)	1	7.00	7.00
Same (cloth)	1	5.22	5.22
Houses and House Life of American Aborigines	1	2.00	2.00
Geology of the Uinta Mountains with atlas	1	1.25	1.25
Geology of the Henry Mountains	1	.50	.50
Lands of the Arid Regions	1	.78	.78
U. S. Geological Survey (Powell):			
Annual reports:			
1880	3	.50	1.50
1881	1	1.80	1.80
1883	1	1.32	1.32
1888	4	1.50	6.00
Mineral resources of the United States:			
1884	1	.60	.60
1885	1	.40	.40
1886	2	.50	1.00
1887	5	.50	2.50
1888	10	.50	5.00
Revised Indian treaties	8	2.75	22.00
United States maps	425	1.25	531.25
State and territorial maps, number of sheets	701	.17	119.34
Session Laws Fifty-first Congress, first session	1	1.05	1.05
Session Laws Fifty-first Congress, second session	2	.75	1.50
Catalogue of Government Publications	1	1.90	1.90
U. S. Entomological Commission:			
Third Report	2	.60	1.20
Insects Injurious to Forest and Shade Trees	1	.50	.50
Total			3,318.12

In addition the sum of $159.60 was received from the Baltimore and Ohio Railroad Company in payment for documents destroyed by fire while in transit under its care.

EXCHANGE OF PUBLIC DOCUMENTS.

The exchange of documents among the libraries of the country has been continued through the year, as far as this has been practicable. Since my last report 27,100 volumes have been received, chiefly from public and college libraries. The number of these availing themselves of the opportunity that this redistribution of documents affords for supplying deficiencies is increasing year by year. The work, however, would be facilitated by the prompt return by librarians of the check lists sent by the Department for the purpose of ascertaining their wants. The attention of delinquents is hereby called to this matter. If librarians to whom the list is sent do not wish to add to their supply of public documents, the Department will be glad to be informed to this effect.

The number of volumes received from all sources, which by this system of exchange have been made available for supplying deficiencies, amounts in the aggregate to 172,000.

GENERAL REMARKS.

In previous reports the attention of Congress has been called to the great importance of new legislation regarding the printing and distribution of public documents. Especially has it been urged that provision be made by which the whole work of the distribution of documents should be put upon a strictly business foundation and the unsystematic and extravagant methods hitherto in vogue terminated.

The preparation of a comprehensive index of public documents has also been earnestly recommended. The want of such an index is keenly felt by all who have occasion frequently to consult the publications of the Government, and nothing would be more effective in increasing the use and so the value of these publications.

It has been furthermore suggested that larger provision be made for regularly supplying the public libraries of the country with such documents as are of general interest, and that to accomplish this, without increasing the expense of public printing, the number of documents issued for distribution to individuals might with propriety be reduced. There can certainly be no reasonable objection to this reduction, if such provision is made for the sale of documents that individuals can purchase them at the mere cost of publication. The policy of providing liberally for public libraries and of very greatly reducing the printing of documents for gratuitous distribution to individuals must ultimately be adopted or the appropriation for printing and binding must continue to increase with the increase of the population.

It is gratifying to be able to report that many of the recommendations above referred to have been embodied in a bill which passed the Senate during the last session and is now before the House of Representatives. While this bill does not, in my judgment, meet all the requirements of the case, it will, if it become a law, accomplish in a large measure what is desired. It is no small argument in its favor that it brings together in one act all the laws which are of continuing force touching the printing and distribution of public documents. It will unify and simplify the whole work of distributing public documents and, in a degree at least, introduce business principles into this department of the public service. It will relieve members of Congress and others of much of the inconvenience which they now experience in connection with this matter. Public libraries will be more liberally pro-

vided for. The purchase of documents by those who desire to buy, or who prefer to buy rather than beg, will be made practicable. The demand for a satisfactory index of public documents will be fully met. It will largely reduce the expense of printing, binding, and distributing documents. It is thought, by those best qualified to form an estimate, that this reduction will amount to from $200,000 to $300,000 per annum. In my own judgment, the passage of this bill will ultimately result in a saving to the Government of even a larger sum.

The amount to be annually expended for this purpose will of course depend upon the will of Congress, but it is probable that if the whole work of distributing documents were put under the supervision of one single officer, he would soon be able so to systematize it as to effect a large saving, while his experience would enable him at an early day to point out to Congress ways in which expenditures for printing may be lessened, especially in reducing the number of certain documents which are now printed very much in excess of the demand for the same.

I am myself convinced, after an experience of eighteen years in my present office, that two-thirds of the documents which are now being printed year by year would be entirely adequate to meet all legitimate demands, and the number might be reduced one-half if ample provision were made for supplying public, university, and college libraries. If, however, it is the object and policy of Congress to print documents, not for the purpose of diffusing useful information, but for complimentary or partisan distribution, then little reduction in expenditures for public priuting can be expected. Such personal and indiscriminate distribution will lead to continually increasing appropriations, as the population of the country and the membership of the two Houses of Congress increase.

It may not indeed be a very large sum that is needlessly and therefore inexcusably expended in conducting this part of the public business under present methods, but any suggestions looking to the saving of one-half or even one-fourth of a million of dollars per annum may well receive the attention of Congress, especially when this saving can beaccomplished not only without detriment but with advantage to the public service.

In view of all these considerations it is earnestly hoped that the bill above referred to may receive the approval of both Houses of Congress and become a law. In that event I am very fully persuaded that in its practical execution it will be found eminently satisfactory to all con cerned.

With my last report I submitted a list of Congressional documents from the Fifteenth to the Fifty-first Congress, together with lists of other series of Government publications, which has been found very useful, especially by librarians and officers of the Government.

With this report I submit a finding list, which is designed to meet, in part at least, a want which can be fully met only by a complete index of public documents. This list shows by Congress, session, classification, volume, and number where, in the leather-bound set of Congressional documents, the individual volumes of the most important series of Government publications are found. Many libraries are supplied with these publications only in the Congressional set. This set now embraces more than 2,500 volumes, and without some such help as this list affords reference to individual volumes is often slow and tedious. It is therefore believed that this Finding List will prove acceptable to librarians and others as materially facilitating such reference.

FINDING LIST

SHOWING

WHERE IN THE SET OF CONGRESSIONAL DOCUMENTS THE INDIVIDUAL VOLUMES OF CERTAIN SERIES OF GOVERNMENT PUBLICATIONS ARE FOUND.

PREPARED BY

JOHN G. AMES,

SUPERINTENDENT OF DOCUMENTS, DEPARTMENT OF THE INTERIOR.

This list has grown out of an experience of the difficulties in the way of a quick and ready reference to the individual volumes enumerated as they are found in the leather bound set of Congressional documents.

Its purpose, as its name implies, is to facilitate such reference on the part of librarians and others who may have these publications at their command only as they are found in the Congressional set.

It is hoped that its value in this direction may prove to be such as fully to justify the labor and expense of its preparation and publication. It may also serve as a suggestion of what may be done in a similar way in the case of many other publications of the Government.

ANNUAL MESSAGES OF THE PRESIDENT OF THE UNITED STATES.

President.	Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
Monroe	1820	16	2	....	Doc	1	....	1	....
	1821	17	1	Doc	.....	1	....	1	....
		17	1	.....	Doc	1	....	1	....
	1822	17	2	Doc	.....	1	....	1	....
		17	2	.....	Doc	1	....	2	....
	1823	18	1	Doc	.....	1	....	1	....
		18	1	.....	Doc	1	....	2	....
	1824	18	2	Doc	.....	1	....	1	....
		18	2	.....	Doc	1	....	2	....
Adams	1825	19	1	Doc	.....	1	....	2	....
		19	1	.....	Doc	1	....	1	....
	1826	19	2	Doc	.....	1	....	1	....
	1827	20	1	Doc	.....	1	....	1	....
		20	1	.....	Doc	1	....	2	....
	1828	20	2	Doc	.....	1	....	1	....
		20	2	.....	Doc	1	....	2	....
Jackson	1829	21	1	Doc	.....	1	....	1	....
		21	1	.....	Doc	1	....	2	....
	1830	21	2	Doc	.....	1	....	1	....
		21	2	.....	Doc	1	....	2	....
	1831	22	1	.....	Doc	1	....	2	....
	1832	22	2	.....	Doc	1	....	2	....
	1833	23	1	Doc	.....	1	....	1	....
		23	1	.....	Doc	1	....	1	....
	1834	23	2	Doc	.....	1	....	1	....
		23	2	.....	Doc	1	....	2	....
	1835	24	1	.....	Doc	1	....	2	....
	1836	24	2	Doc	.....	1	....	1	....
		24	2	.....	Doc	1	....	2	....
Van Buren	1837	25	1	Doc	.....	1	....	1	....
		25	1	.....	Doc	1	....	1	....
		25	2	Doc	.....	1	....	1	....
		25	2	.....	Doc	1	....	3	....
	1838	25	3	Doc	.....	1	....	1	....
		25	3	.....	Doc	1	....	2	....
	1839	26	1	Doc	.....	1	....	1	....
		26	1	.....	Doc	1	....	2	....
	1840	26	2	Doc	.....	1	....	1	....
		26	2	.....	Doc	1	....	2	....

Annual Messages of the President of the United States—Continued.

President.	Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
Tyler	1841	27	1	Doc.	.....	1	....	1	....
		27	1	.....	Doc.	1	....	1	....
		27	2	Doc.	.....	1	....	1	....
		27	2	.....	Doc.	1	....	2	....
	1842	27	3	Doc.	.....	1	....	1	....
		27	3	.....	Doc.	1	....	2	....
	1843	28	1	Doc.	.....	1	....	1	....
		28	1	.....	Doc.	1	....	2	....
	1844	28	2	Doc.	.....	1	....	1	....
		28	2	.....	Doc.	1	....	2	....
Polk	1845	29	1	Doc.	.....	1	....	1	....
		29	1	.....	Doc.	1	....	2	....
	1846	29	2	Doc.	.....	1	....	1	....
		29	2	.....	Doc.	1	....	4	....
	1847	30	1	Ex..	.....	1	....	1	....
		30	1	.....	Ex..	2	....	8	....
	1848	30	2	.....	Ex..	1	....	1	....
Taylor	1849	31	1	Ex..	.....	1	....	1	1
		31	1	.....	Ex..	3	1	5	....
Fillmore	1850	31	2	Ex..	.....	1	....	1	....
		31	2	.....	Ex..	1	....	1	....
	1851	32	1	Ex..	.....	1	....	1	....
		32	1	.....	Ex..	2	....	2	1
	1852	32	2	Ex..	.....	1	....	1	....
		32	2	.....	Ex..	1	1	1	....
Pierce	1853	33	1	Ex..	.....	1	....	1	....
		33	1	.....	Ex..	1	1	1	....
	1854	33	2	Ex..	.....	1	....	1	....
		33	2	.....	Ex..	1	1	1	....
	1855	34	1	Ex..	.....	1	....	1	....
		34	1	.....	Ex..	1	1	1	....
	1856	34	3	Ex..	.....	2	....	5	....
		34	3	.....	Ex..	1	1	1	....
Buchanan	1857	35	1	Ex..	.....	2	....	11	....
		35	1	.....	Ex..	2	1	2	....
	1858	35	2	Ex..	.....	1	....	1	....
		35	2	.....	Ex..	2	1	2	....
	1859	36	1	Ex..	.....	1	....	2	....
	1860	36	2	Ex..	.....	1	....	1	....
Lincoln	1861	37	1	Ex..	.....	1	....	1	....
		37	2	Ex..	.....	1	....	1	....
	1862	37	3	.....	Ex..	1	....	1	....
	1863	38	1	.....	Ex..	1	....	1	....
	1864	38	2	.....	Ex..	1	....	1	....
Johnson	1865	39	1	.....	Ex..	1	1	1	....
	1866	39	2	.....	Ex..	1	1	1	....
	1867	40	2	.....	Ex..	1	1	1	....
	1868	40	3	.....	Ex..	1	1	1	....

Annual Messages of the President of the United States—Continued.

President.	Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
Grant	1869	41	2	.....	Ex..	1	....	1	1
	1870	41	3	.....	Ex..	1	....	1	1
	1871	42	2	.....	Ex..	1	....	1	....
	1872	42	3	.....	Ex..	1	1	1	1
	1873	43	1	.....	Ex..	1	1	1	1
	1874	43	2	.....	Ex..	1	....	1	1
	1875	44	1	.....	Ex..	1	1	1	1
	1876	44	2	.....	Ex..	1	....	1	1
Hayes	1877	45	2	.....	Ex..	1	....	1	1
	1878	45	3	.....	Ex..	1	....	1	1
	1879	46	2	.....	Ex..	1	....	1	1
	1880	46	3	.....	Ex..	1	....	1	1
Arthur	1881	47	1	.....	Ex..	1	....	1	1
	1882	47	2	.....	Ex..	I	....	1	1
	1883	48	1	.....	Ex..	1	....	1	1
	1884	48	2	.....	Ex..	1	....	1	1
Cleveland	1885	49	1	.....	Ex..	1	....	1	1
	1886	49	2	.....	Ex..	1	....	1	1
	1887	50	1	.....	Ex..	1	...	1	1
	1888	50	2	.....	Ex..	1	1	1	1
Harrison	1889	51	1	.....	Ex..	1	....	1	1
	1890	51	2	.....	Ex..	1	....	1	1
	1891	52	1	.....	Ex..	1	....	1	1

DIPLOMATIC CORRESPONDENCE OR FOREIGN RELATIONS OF THE UNITED STATES.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1835	24	1	.....	Doc.	1	.....	2	....
1836	24	2	Doc.	.....	1	.....	1	....
1837	25	2	Doc.	....	1	.....	1	....
	25	2	.....	Doc.	1	.....	3	....
1838	25	3	Doc.	.....	1	.....	2	....
	25	3	.....	Doc.	1	.....	2	....
1839 *								
1840 *								
1841	27	2	Doc.	.....	1	.....	1	....
	27	2	.....	Doc.	1	.....	2	....
1842	27	3	Doc.	.....	1	.....	1	....
	27	3	.....	Doc.	1	.....	2	....
1843	28	1	Doc.	.....	1	.....	1	....
	28	1	.....	Doc.	1	.....	2	....
1844	28	2	Doc.	.....	1	.....	1	....
	28	2	.....	Doc.	1	.....	2	....
1845	29	1	Doc.	.....	1	.....	1	....
	29	1	.....	Doc.	1	.....	2	....
1846	29	2	Doc.	.....	1	.....	1	....
	29	2	.....	Doc.	1	.....	4	....
1847	30	1	Doc.	.....	1	.....	1	....
1848	30	2	.....	Ex..	1	.....	1	....
1849	31	1	Ex..	.....	1	.....	1	1
	31	1	.....	Ex..	3	1	5	1
1850*								
1851	32	1	Ex..	.....	1	.....	1	1
	32	1	.....	Ex..	2	1	2	1
1852 *								
1853	33	1	Ex..	.....	1	.....	1	1
	33	1	.....	Ex..	1	1	1	1
1854	33	2	Ex..	.....	1	.....	1	1
	33	2	.....	Ex..	1	1	1	1
1855	34	1	Ex..	.....	1	.....	1	1
	34	1	.....	Ex..	1	1	1	1
1856	34	3	Ex..	.....	2	.....	5	1
	34	3	.....	Ex..	1	1	1	1
1857	35	1	Ex..	.....	2	.....	11	1
	35	1	.....	Ex..	2	1	2	1
1858	35	2	Ex..	.....	1	....	1	1
	35	2	.....	Ex..	2	1	2	1
1859	36	1	Ex..	.....	1	.....	2	1
1860 *	.....	....	.....	.....	.....	.....	....	....
1861	37	2	Ex..	.....	1	.....	1	1
1862	37	3	.....	Ex..	1	.....	1	1

* No diplomatic correspondence was submitted by the President with his annual message.

Diplomatic Correspondence or Foreign Relations of the United States—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1863	38	1	.....	Ex..	1, 2	.....	1	1, 2
1864	38	2	.....	Ex..	1–4	.....	1	1–4
1865	39	1	.....	Ex..	1	1–4	1	....
1866	39	2	.....	Ex..	1	1–3	1	1–3
1867	40	2	.....	Ex..	1	1, 2	1	....
1868	40	3	.....	Ex..	1	1, 2	1	....
1869	41	2	.....	Ex..	1	.....	1	....
1870	41	3	.....	Ex..	1	.....	1	....
1871	42	2	.....	Ex..	1	.....	1	1
1872	42	3	.....	Ex..	1	1	1	1
1873	43	1	.....	Ex..	1	1–3	1	1
1874	43	2	.....	Ex..	1	.....	1	1
1875	44	1	.....	Ex..	1	1, 2	1	1
1876	44	2	.....	Ex..	1	.....	1	1
1877	45	2	.....	Ex..	1	.....	1	1
1878	45	3	.....	Ex..	1	.....	1	1
1879	46	2	.....	Ex..	1	.....	1	1
1880	46	3	.....	Ex..	1	.....	1	....
1881	47	1	.....	Ex..	1	.....	1	1
1882	47	2	.....	Ex..	1	.....	1	1
1883	48	1	.....	Ex..	1	.....	1	1
1884	48	2	.....	Ex..	1	.....	1	1
1885	49	1	.....	Ex..	1	.....	1	1
1886	49	2	.....	Ex..	1	.....	1	1
1887	50	1	.....	Ex..	1	.....	1	1
1888	50	2	.....	Ex..	1	1, 2	1	1
1889	51	1	.....	Ex..	1	.....	1	1
1890	51	2	.....	Ex..	1	.....	1	1
1891	52	1	.....	Ex..	1	.....	1	1

ANNUAL REPORTS ON THE COMMERCIAL RELATIONS OF THE UNITED STATES.

Year.	Volume.	Congress.	Session.	Senate.	House.	Volume.	Parts.	Number.	Parts.
1855	1–4	34	1	Ex.	.....	19	1–4	107	1–4
	1–4	34	1	.....	Ex.	10	1–4	47	1–4
1856	....	34	3	Ex.	.....	14	.....	35	....
	....	34	3	.....	Ex.	7	.....	60	....
1857	....	35	1	Ex.	.....	16	.....	53	....
	....	35	1	.....	Ex.	5	.....	17	....
1858	....	35	2	Ex.	.....	17	.....	37	....
	....	35	2	.....	Ex.	8	.....	85	....
1859	.....	36	1	.....	Ex.	2	.....	4	....
1860	.....	36	2	Ex.	.....	9	.....	6	....
1861	.....	37	2	.....	Ex.	4	.....	45	....
1862	.....	37	3	.....	Ex.	12	.....	63	....
1863	.....	38	1	.....	Ex.	10	.....	41	....
1864	.....	38	2	.....	Ex.	11	.....	60	....
1865	.....	39	1	.....	Ex.	10	.....	56	....
1866	.....	39	2	.....	Ex.	13	.....	81	....
1867	.....	40	2	.....	Ex.	14	.....	160	....
1868	.....	40	3	.....	Ex.	14	.....	87	....
1869	.....	41	3	.....	Ex.	6	.....	18	....
1870	.....	41	3	.....	Ex.	8	.....	93	....
1871	.....	42	2	.....	Ex.	18	.....	220	....
1872	.....	42	3	.....	Ex.	10	.....	160	....
1873	.....	43	1	.....	Ex.	13	.....	143	....
1874	.....	43	2	.....	Ex.	16	.....	157	....
1875	.....	44	1	.....	Ex.	15	.....	166	....
1876	.....	44	2	.....	Ex.	12	.....	45	....
1877	.....	45	2	.....	Ex.	22	.....	102	....
1878	.....	45	3	.....	Ex.	18	.....	108	....
1879	1, 2	46	2	.....	Ex.	25, 26	.....	90	1, 2
1880	....	46	3	.....	Ex.	30	.....	98	
1881									
1882	1, 2	48	1	.....	Ex.	29, 30	.....	176	1, 2
1883									
1884	....	49	1	.....	Ex.	34	.....	253	....
1885									
1885	1, 2	49	2	.....	Ex.	26, 27	.....	171	1, 2
1886									
1886	....	50	1	.....	Ex.	31	.....	402	....
1887									
1887	....	51	1	.....	Ex.	44	.....	437	....
1888									
1888	....	51	2	.....	Ex.	29	.....	70	....
1889									
1889	....	52	1	.....	Ex.	37	.....	204	....
1890									

CONSULAR REPORTS.

[The prior volumes of this series are not included in the Congressional set.]

Volume.	Number.	Congress.	Session.	House.	Volume.	Part.	Number.	Part.
7	23– 24½	47	1	Mis.	25	....	65	....
8	25– 26½	47	2	Mis.	4	....	19	....
9	27– 30	47	2	Mis.	11	....	39	....
10	31– 34	48	1	Mis.	4	....	12	1
11	35– 38	48	1	Mis.	5	....	12	2
12	39– 41½	48	1	Mis.	6	....	12	3
13	42– 44	48	1	Mis.	7	....	12	4
14	45– 48	48	2	Mis.	10	....	34	....
15	49– 52	49	1	Mis.	7	....	28	....
16	53– 56	49	1	Mis.	8	....	29	....
17	57– 59	49	1	Mis.	12	....	178	....
18	60– 62	49	1	Mis.	12	....	179	....
19	63– 68	49	2	Mis.	4	....	55	....
20	69– 72	49	2	Mis.	4	....	56	....
21	73– 75	49	2	Mis.	9	....	169	....
22	76– 80	50	1	Mis.	21	....	604	....
23	81– 84	50	1	Mis.	21	....	605	....
24	85– 87	50	1	Mis.	22	....	606	....
25	88– 91	50	1	Mis.	22	....	607	....
26	92– 94	50	1	Mis.	23	....	608	....
27	95– 97	50	1	Mis.	23	....	609	....
28	98–100	50	2	Mis.	13	1	140	....
29	101–104	50	2	Mis.	13	2	141	....
30	105–107½	51	1	Mis.	24	....	231	....
31	108–111	51	1	Mis.	25	....	232	....
32	112–115	51	1	Mis.	26	....	234	....
33	116–119	51	1	Mis.	39	....	269	....
34	120–123	51	2	Mis.	9	....	128	....
35	124–127	52	1	Mis.	15	....	17	....
36	128–131	52	1	Mis.	15	....	18	....
37	132–135	52	1	Mis.	34	....	154	....
38	136–139	52	1	Mis.	39	....	258	....
39	140–143	52	1	Mis.	49	....	339	....

SPECIAL CONSULAR REPORTS.

Volume.	Congress.	Session.	House.	Volume.	Number.	Part.
1	51	1	Mis.	40	268	....
2	52	1	Mis.	16	19	....
3	52	1	Mis.	16	20	....
4	51	2	Ex.	27	45	2
5	51	2	Ex.	26	45	1
6	52	1	Mis.	33	153	....

ANNUAL REPORTS OF THE SECRETARY OF THE TREASURY ON THE STATE OF THE FINANCES.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1825	19	1	Doc.	.....	1	....	6	....
	19	1	.....	Doc.	1	....	13	....
1826	19	2	Doc.	.....	2	....	3	....
	19	2	.....	Doc.	2	....	11	....
1827	20	1	Doc.	.....	1	....	4	....
	20	1	.....	Doc.	1	....	4	....
1828	20	2	Doc.	.....	1	....	7	....
	20	2	.....	Doc.	1	....	9	....
1829	21	1	Doc.	.....	1	....	3	....
	21	1	.....	Doc.	1	....	6	....
1830	21	2	Doc.	.....	1	....	6	....
	21	2	.....	Doc.	1	....	7	....
1831	22	1	Doc	.....	1	....	1	....
	22	1	.....	Doc.	1	....	3	....
1832	22	2	.....	Doc.	1	....	3	....
1833	23	1	Doc.	.....	1	....	9	....
	23	1	.....	Doc.	1	....	15	....
1834	23	2	Doc.	.....	1	....	2	....
	23	2	.....	Doc.	1	....	3	....
1835	24	1	Doc.	.....	1	....	2	....
	24	1	.....	Doc.	1	....	3	....
1836	24	2	Doc.	.....	1	....	2	....
	24	2	.....	Doc.	1	....	4	....
1837	25	1	.....	Doc.	1	....	2	....
	25	2	Doc.	.....	1	....	2	....
	25	2	.....	Doc.	1	....	4	....
1838	25	3	Doc.	.....	1	....	2	....
	25	3	.....	Doc.	1	....	4	....
1839	26	1	Doc.	.....	1	....	2	....
	26	1	.....	Doc.	1	....	3	....
1840	26	2	Doc.	.....	1	....	2	....
	26	2	.....	Doc.	1	....	3	....
1841	27	1	Doc.	.....	1	....	10	....
	27	1	.....	Doc.	1	....	2	....
	27	2	Doc.	.....	2	....	17	....
	27	2	.....	Doc.	2	....	18	....
1842	27	3	Doc.	.....	2	....	5	....
	27	3	.....	Doc.	2	....	17	....
1843	28	1	Doc.	.....	2	....	3	....
	28	1	.....	Doc.	1	....	7	....
1844	28	2	Doc.	.....	1	....	6	....
	28	2	.....	Doc.	1	....	16	....
1845	29	1	Doc.	.....	2	....	2	....
	29	1	.....	Doc.	2	....	6	....
1846	29	2	Doc.	.....	1	....	2	....
	29	2	.....	Doc.	2	....	7	....

Annual Reports of the Secretary of the Treasury on the State of the Finances—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1847	30	1	.....	Ex ..	1	....	6	....
1848	30	2	.....	Ex ..	2	....	7	....
1849	31	1	Ex ..	.....	4	....	2	....
	31	1	.....	Ex ..	2	....	4	....
1850	31	2	Ex ..	.....	2	....	4	....
	31	2	.....	Ex ..	3	....	11	....
1851	32	1	Ex ..	.....	4	....	11	....
	32	1	.....	Ex ..	3	....	18	....
1852	32	2	Ex ..	.....	5	....	22	....
	32	2	.....	Ex ..	3	....	23	....
1853	33	1	Ex ..	.....	4	....	2	....
	33	1	.....	Ex ..	2	....	3	....
1854	33	2	Ex ..	.....	4	....	2	....
	33	2	.. ...	Ex ..	2	....	3	....
1855	34	1	Ex ..	.....	5	....	2	....
	34	1	.....	Ex	4	....	10	....
1856	34	3	Ex ..	.....	1	....	3	....
	34	3	.....	Ex ..	2	....	2	....
1857	35	1	Ex ..	.....	1	....	1	....
	35	1	.....	Ex ..	1	....	1	....
1858	35	2	Ex ..	.....	6	1	2	....
	35	2	.....	Ex ..	1	....	3	....
1859	36	1	Ex ..	.....	5	....	3	....
1860	36	2	.....	Ex ..	2	....	2	....
1861	37	2	Ex ..	.....	4	....	2	....
1862	37	3	Ex ..	.....	1	....	1	....
1863	38	1	.....	Ex ..	6	....	3	....
1864	38	2	.....	Ex ..	7	....	3	....
1865	39	1	.....	Ex ..	6	....	3	....
1866	39	2	.....	Ex ..	5	....	4	....
1867	40	2	.....	Ex ..	5	....	2	....
1868	40	3	.....	Ex ..	5	....	2	....
1869	41	2	.....	Ex ..	4	....	2	....
1870	41	3	.....	Ex ..	5	....	2	....
1871	42	2	.....	Ex ..	4	....	2	....
1872	42	3	.....	Ex ..	4	....	2	....
1873	43	1	.....	Ex ..	5	....	2	....
1874	43	2	.....	Ex ..	8	....	2	....
1875	44	1	.....	Ex ..	6	....	2	....
1876	44	2	.....	Ex ..	6	....	2	....
1877	45	2	.....	Ex ..	11	....	2	....
1878	45	3	.....	Ex ..	12	....	2	....
1879	46	2	.....	Ex ..	13	....	2	....
1880	46	3	.....	Ex ..	13	....	2	....
1881	47	1	.....	Ex ..	14	....	2	....
1882	47	2	.....	Ex ..	15	....	2	....
1883	48	1	.....	Ex ..	14	...	2	....

Annual Reports of the Secretary of the Treasury on the State of the Finances—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1884	48	2	.....	Ex ..	16	....	2	....
1885	49	1	.....	Ex {	17	....	2	1
					18	....	2	2
1886	49	2	.....	Ex ..	13	....	2	1, 2
1887	50	1	.....	Ex ..	16	....	2	....
1888	50	2	.....	Ex ..	17	....	2	....
1889	51	1	.....	Ex ..	19	....	2	....
1890	51	2	.....	Ex ..	19	....	2	....
1891	52	1	.....	Ex ..	23	....	2	....

ANNUAL REPORTS ON THE COMMERCE AND NAVIGATION OF THE UNITED STATES.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1825	19	1	Doc.	.....	3	....	76	....
	19	1	.....	Doc.	9	....	148	....
1826	19	2	Doc.	.....	3	....	72	....
	19	2	.....	Doc.	6	....	120	....
1827	20	1	Doc.	.....	5	....	174	....
	20	1	.....	Doc.	6	....	253	....
1828	20	2	Doc.	.....	2	....	86	....
	20	2	.....	Doc.	4	....	137	....
1829	21	1	Doc.	.....	2	....	95	....
	21	1	.....	Doc.	2	....	49	....
1830	21	2	Doc.	.....	2	....	76	....
	21	2	.....	Doc.	4	....	140	....
1831	22	1	.....	Doc.	5	....	230	....
1832	22	2	.....	Doc.	2	....	109	....
1833	23	1	Doc.	.....	4	....	289	....
	23	1	.....	Doc.	5	....	355	....
1834	23	2	Doc.	.....	4	....	149	....
	23	2	.....	Doc.	5	....	187	....
1835	24	1	Doc.	.....	5	....	375	....
	24	1	.....	Doc.	6	....	258	....
1836	24	2	Doc.	.....	3	....	225	....
	24	2	.....	Doc.	4	....	188	....
1837	25	2	Doc.	.....	5	....	446	....
	25	2	.....	Doc.	10	....	372	....
1838	25	3	Doc.	.....	5	....	306	....
1839	26	1	Doc.	.....	8	....	577	....
	26	1	.....	Doc.	7	....	251	....
1840	26	2	Doc.	.....	5	....	238	....
	26	2	.....	Doc.	5	....	122	....
1841	27	2	Doc.	.....	5	....	356	....
1842	27	3	Doc.	.....	4	....	247	....
	27	3	.....	Doc.	8	....	220	....
1843	28	1	Doc.	.....	5	....	289	....
1844	28	2	Doc.	.....	7	....	125	....
	28	2	.....	Doc.	4	....	154	....
1845	29	1	Doc.	.....	3	....	4	...
	29	1	.....	Doc.	3	....	13	....
1846	29	2	Doc.	.....	2	....	7	....
	29	2	.....	Doc.	2	....	11	....
1847	30	1	Ex..	.....	2	....	5	....
1848	30	2	.....	Ex..	5	....	42	....
1849	31	1	Ex..	.....	5	....	3	....
1850	31	2	.....	Ex..	8	....	.....	....
1851	32	1	Ex..	.....	16	....	.....	....
	32	1	.....	Ex..	14	....	.....	....
1852	32	2	.....	Ex..	11	....	.....	....

Annual Reports on the Commerce and Navigation of the United States—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1853	33	1	Ex	.....	12	2	.....	....
	33	1	.....	Ex	19	....	.....	....
1854	33	2	Ex	.....	5	....	.....	....
	33	2	.....	Ex	14	....	.....	....
1855	34	1	Ex	.....	16	....	.....	....
	34	1	.....	Ex	16	....	.....	....
	34	3	Ex	.....	13	....	.....	....
1856	34	3	.....	Ex	13	....	.....	....
	35	1	Ex	.....	14	....	.....	....
1857	35	1	.....	Ex	14	....	.....	....
	35	2	Ex	.....	15	....	.....	....
1858	35	2	.....	x	13	....	.....	....
	36	1	Ex	.....	12	....	.....	....
1859	36	1	.....	Ex	15	....	.....	....
	36	2	Ex	.....	8	....	.....	....
1860	36	2	.....	Ex	*11	....	.....	....
1861	37	2	.....	Ex	12	....	.....	....
1862	37	3	.....	Ex	*13	....	.....	....
1863	38	1	.....	Ex	*17	....	.....	....
1864	38	2	.....	Ex	15	....	.....	....
1865	39	1	.....	Ex	*17	....	.....	....
1866	39	2	.....	Ex	*17	....	.....	....
1867	40	2	.....	Ex	*22	....	.....	....
1868	40	3	.....	Ex	*16	....	.....	....
1869	41	2	.....	Ex	*15	....	.....	....
1870	41	3	.....	Ex	10	....	96	....
1871	42	2	.....	Ex	9	....	108	....
1872	42	3	.....	Ex	11	....	242	....
1873	43	1	.....	Ex	14	....	183	....
1874	43	2	.....	Ex	17	....	171	....
1875	44	1	.....	Ex	13	....	124	....
1876	44	2	.....	Ex	13	1	46	....
1877	45	2	.....	Ex	21	....	90	....
1878	45	3	.....	Ex	15	1	32	1
1879	46	2	.....	Ex	16	....	7	....
1880	46	3	.....	Ex	16	....	7	....
1881	47	1	.....	Ex	17	....	7	....
1882	47	2	.....	Ex	18	....	7	....
1883	48	1	.....	Ex	17	....	7	....
1884	48	2	.....	Ex	19	....	7	....
1885	49	1	.....	Ex	24	....	19	....
1886	49	2	.....	Ex	16	....	7	1
1887	50	1	.....	Ex	20	....	6	1
1888	50	2	.....	Ex	21	....	6	....
1889	51	1	.....	Ex	22	....	6	1
1890	51	2	.....	Ex	23	....	6	1
1891	52	1	.....	Ex	27	....	6	1

*This volume is not enumerated in list found in House Executive Documents.

REPORTS ON THE INTERNAL COMMERCE OF THE UNITED STATES.

[The volume for 1876 is entitled "First Annual Report," but no report was issued for 1877, 1878, 1881, 1883, and 1888.]

Year.	Congress.	Session.	House.	Volume.	Part.	Number.	Part.
1876	44	2	Ex.	13	2	46	2
1879	45	3	Ex.	15	2	32	3
1880	46	3	Ex.	16	....	7	2
1882*	....	....	....	....	....	....	....
1884	48	2	Ex.	20	....	7	2
1885	48	2	Ex.	20	....	7	3
1886	49	2	Ex.	17	....	7	2
1887	50	1	Ex.	20	....	6	2
1889	51	1	Ex.	23	....	6	2
1890	51	2	Ex.	24	....	6	2
1891	52	1	Ex.	28	....	6	2

*The report for 1882 is not included in the Congressional documents, but was published as Treasury Department document, No. 336, Bureau of Statistics.

ANNUAL REPORTS OF THE COMPTROLLER OF THE CURRENCY.

Year.	Congress.	Session.	House.	Volume.	Number.	Part.
1865	39	1	Ex..	6	4	....
1866	39	2	Ex..	5	3	....
1867	40	2	Ex..	6	4	....
1868	40	3	Ex..	6	4	....
1869	41	2	Ex..	4	3	....
1870	41	3	Ex..	5	3	....
1871	42	2	Ex..	5	3	....
1872	42	3	Ex..	5	3	....
1873	43	1	Ex..	6	3	....
1874	43	2	Ex..	9	3	....
1875	44	1	Ex..	7	3	....
1876	44	2	Ex..	7	3	....
1877	45	2	Ex..	12	3	....
1878	45	3	Ex..	13	3	....
1879	46	2	Ex..	14	3	....
1880	46	3	Ex..	14	3	....
1881	47	1	Ex..	15	3	....
1882	47	2	Ex..	16	3	....
1883	48	1	Ex..	15	3	....
1884	48	2	Ex..	17	3	....
1885	49	1	Ex..	19	3	....
1886	49	2	Ex..	14	3	....
1887	50	1	Ex..	17	3	1, 2
1888	50	2	Ex..	18	3	1, 2
1889	51	1	Ex..	20	3	1, 2
1890	51	2	Ex..	20	3	1, 2
1891	52	1	Ex..	24, 25	3	1, 2

ANNUAL REPORTS OF THE COMMISSIONER OF INTERNAL REVENUE.

Year.	Congress.	Session.	House.	Volume.	Number.
1866	39	2	Ex..	9	55
1867	40	2	Ex..	6	5
1868	40	3	Ex..	6	5
1869	41	2	Ex..	5	4
1870	41	3	Ex..	6	4
1871	42	2	Ex..	5	4
1872	42	3	Ex..	5	4
1873	43	1	Ex..	6	4
1874	43	2	Ex..	9	4
1875	44	1	Ex..	7	4
1876	44	2	Ex..	7	4
1877	45	2	Ex..	12	4
1878	45	3	Ex..	13	4
1879	46	2	Ex..	14	4
1880	46	3	Ex..	14	4
1881	47	1	Ex..	15	4
1882	47	2	Ex..	16	4
1883	48	1	Ex..	15	4
1884	48	2	Ex..	17	4
1885	49	1	Ex..	20	4
1886	49	2	Ex..	14	4
1887	50	1	Ex..	18	4
1888	50	2	Ex..	19	4
1889	51	1	Ex..	18	4
1890	51	2	Ex..	21	4
1891	52	1	Ex..	22	4

REPORTS OF THE DIRECTOR OF THE MINT ON THE PRODUCTION OF THE PRECIOUS METALS IN THE UNITED STATES.

Year.	Congress.	Session.	House.	Volume.	Number.
1880	46	3	Ex..	28	91
1881	47	1	Ex..	23	297
1882	47	2	Ex..	24	160
1883	48	1	Ex..	31	176
1884	48	2	Ex..	33	268
1885	49	1	Ex..	36	290
1886	49	2	Ex..	25	200
1887	50	1	Ex..	30	405
1888	50	2	Ex..	26	158
1889	51	1	Ex..	35	354
1890	....	....	.....	....	....
1891	52	1	Ex..	35	200

ANNUAL REPORTS OF THE UNITED STATES COAST SURVEY.

Year.	Congress.	Session.	Senate.	House.	Volume.	Number.	Part.
1834	23	2	Doc.	.....	1	1	....
	23	2	.....	Doc.	1	2	....
1835	24	1	Doc.	.....	1	1	....
	24	1	.....	Doc.	1	2	....
1836	24	2	.....	Doc.	1	13	....
1837	25	2	Doc.	.....	1	79	....
	25	2	.....	Doc.	2	14	....
1838	25	3	Doc.	.....	1	4	....
1839	26	1	Doc.	.....	2	15	....
	26	1	.....	Doc.	2	20	....
1840	26	2	Doc.	.....	2	20	....
	26	2	.....	Doc.	1	14	....
1841	27	2	.....	Doc.	2	28	....
1842	27	3	Doc.	.....	2	11	....
	27	3	.....	Doc.	2	23	....
1843	28	1	.....	Doc.	4	97	....
1844	28	2	Doc.	.....	2	16	....
	28	2	.....	Doc.	2	25	....
1845	29	1	Doc.	.....	3	13	....
	29	1	.....	Doc.	3	38	....
1846	29	2	Doc.	.....	2	6	....
	29	2	.....	Doc.	2	6	....
1847	30	1	Ex..	.....	3	6	....
1848	30	2	Ex..	.....	1	1	....
	30	2	.....	Ex..	4	13	....
1849	31	1	Ex..	.....	5	5	....
	31	1	.....	Ex..	4	14	....
1850	31	2	Ex..	.....	2	7	....
	31	2	.....	Ex..	4	12	....
1851	32	1	Ex..	.....	5	3	....
	32	1	.....	Ex..	4	26	....
1852	32	2	Ex..	.....	11	58	....
	32	2	.....	Ex..	8	64	....
1853	33	1	Ex..	.....	13	14	....
	33	1	.....	Ex..	4	12	....
1854	33	2	Ex..	.....	12	10	....
	33	2	.....	Ex..	6	20	....
1855	34	1	Ex..	.....	17	22	....
	34	1	.....	Ex..	3	6	....
1856	34	3	Ex..	.....	15	12	....
	34	3	.....	Ex..	4	18	....
1857	35	1	Ex..	.....	15	33	....
	35	1	.....	Ex..	6	21	....
1858	35	2	Ex..	.....	16	14	....
	35	2	.....	Ex..	6	33	....
1859	36	1	.....	Ex..	7	41	....
1860	36	2	.....	Ex..	7	14	....
1861	37	2	.....	Ex..	6	70	....

Annual Reports of the United States Coast Survey—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Number.	Part.
1862	37	3	.....	Ex..	9	22	....
1863	38	1	.....	Ex..	8	11	....
1864	38	2	.....	Ex..	9	15	....
1865	39	1	.....	Ex..	13	75	....
1866	39	2	.....	Ex..	14	87	....
1867	40	2	.....	Ex..	18	275	....
1868	40	3	.....	Ex..	11	71	....
1869	41	2	.....	Ex..	8	206	....
1870	41	3	.....	Ex..	11	112	....
1871	42	2	.....	Ex..	11	121	....
1872	42	3	.....	Ex..	12	240	....
1873	43	1	.....	Ex..	11	133	....
1874	43	2	.....	Ex..	14	100	....
1875	44	1	.....	Ex..	11	81	....
1876	44	2	Ex..	.....	4	37	....
1877	45	2	Ex..	.....	4	12	....
1878	45	3	Ex..	.....	2	13	....
1879	46	2	Ex..	.....	2	17	....
1880	46	3	Ex..	.....	2	12	....
1881	47	1	Ex..	.....	3	49	....
1882	47	2	Ex..	.....	4	77	....
1883	48	1	Ex..	.....	3	29	....
1884	48	2	.....	Ex..	22	43	....
1885	49	1	.....	Ex..	23	18	....
1886	49	2	.....	Ex..	22	40	....
1887	50	1	.....	Ex..	24	17	....
1888	50	2	.....	Ex..	22	22	....
1889	51	1	.....	Ex..	27	55	....
1890	51	2	.....	Ex..	30	80	....
1891	52	1	.....	Ex..	31, 32	43	1, 2

ANNUAL REPORTS OF THE SECRETARY OF WAR, WITH ACCOMPANYING DOCUMENTS.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1825	19	1	Doc.	.....	1	.....	2	....
	19	1	.....	Doc.	1	.....	1	....
1826	19	2	Doc.	.....	1	.....	1	....
	19	2	.....	Doc.	1	.....	2	....
1827	20	1	Do.	.....	1	.....	1	....
	20	1	.....	Doc.	1	.....	1	....
1828	20	2	Doc.	.....	1	.....	1	....
	20	2	.....	Doc.	1	.....	2	....
1829	21	1	Doc.	.....	1	.....	1	....
	21	1	.....	Doc.	1	.....	2	....
1830	21	2	Doc.	.....	1	.....	1	....
	21	2	.....	Doc.	1	.....	2	....
1831	22	1	Doc.	.....	1	.....	1	....
	22	1	.....	Doc.	1	.....	2	....
1832	22	2	.....	Doc.	1	.....	2	....
1833	23	1	Doc.	.....	1	.....	1	....
	23	1	.....	Doc.	1	.....	1	....
1834	23	2	Doc.	.....	1	.....	1	....
	23	2	.....	Doc.	1	.....	2	....
1835	24	1	Doc.	.....	1	.....	1	....
	24	1	.....	Doc.	1	.....	2	....
1836	24	2	Doc.	.....	1	.....	1	....
	24	2	.....	Doc.	1	.....	2	....
1837	25	2	Doc.	.....	1	.....	1	....
	25	2	.....	Doc.	1	.....	3	....
1838	25	3	Doc.	.....	1	.....	1	....
	25	3	.....	Doc.	1	.....	2	....
1839	26	1	Doc.	.....	1	.....	1	....
	26	1	.....	Doc.	1	.....	2	....
1840	26	2	Doc.	.....	1	.....	1	....
	26	2	.....	Doc.	1	.....	2	....
1841	27	2	Doc.	.....	1	.....	1	....
	27	2	.....	Doc.	1	.....	2	....
1842	27	3	Doc.	.....	1	.....	1	....
	27	3	.....	Doc.	1	.....	2	....
1843	28	1	Doc.	.....	1	.....	1	....
	28	1	.....	Doc.	1	.....	2	....
1844	28	2	Doc.	.....	1	.....	1	....
	28	2	.....	Doc.	1	.....	2	....
1845	29	1	Doc.	.....	1	.....	1	....
	29	1	.....	Doc.	1	.....	2	....
1846	29	2	Doc.	.....	1	.....	1	....
	29	2	.....	Doc.	1	.....	4	....
1847	30	1	Ex..	.....	1	.....	1	....
	30	1	.....	Ex..	2	.....	8	....
1848	30	2	.....	Ex..	1	.....	1	....

Annual Reports of the Secretary of War, with accompanying documents—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1849	31	1	Ex	.....	1	.....	1	....
	31	1	.....	Ex	3	1	5	1
1850	31	2	Ex	.....	1	.....	1	....
	31	2	.....	Ex	1	.....	1	....
1851	32	1	Ex	.....	1	.....	1	1
	32	1	.....	Ex	2	1	2	1
1852	32	2	Ex	.....	2	.....	1	2
	32	2	.....	Ex	1	2	1	2
1853	33	1	Ex	.....	2, 3	.....	1	2, 3
	33	1	.....	Ex	1	2, 3	1	2, 3
1854	33	2	Ex	.....	2	.....	1	2
	33	2	.....	Ex	1	2	1	2
1855	34	1	Ex	.....	2	.....	1	2
	34	1	.....	Ex	1	2	1	2
1856	34	3	Ex	.....	3	.....	5	2
	34	3	.....	Ex	1	2	1	2
1857	35	1	Ex	.....	3	.....	11	2
	35	1	.....	Ex	2	2	2	2
1858	35	2	Ex	.....	2, 3	.....	1	2, 3
	35	2	.....	Ex	2, 3	.....	2	2, 3
1859	36	1	Ex	.....	2, 3	.....	2	2, 3
1860	36	2	Ex	.....	2	.....	1	2
1861	37	2	Ex	.....	2	.....	1	2
1862	37	3	.....	Ex	4	.....	1	4
1863	38	1	.....	Ex	5	.....	1	5
1864	38	2	.....	Ex	14	.....	83	....
1865	39	1	.....	Ex	3	1, 2	1	....
1866	39	2	.....	Ex	3	.....	1	5
1867	40	2	.....	Ex	2	1, 2	1	....
1868	40	3	.....	Ex	3	1, 2	1	....
1869	41	2	.....	Ex	2	1, 2	1	....
1870	41	3	.....	Ex	2	1, 2	1	....
1871	42	2	.....	Ex	2	1, 2	1	2
1872	42	3	.....	Ex	2	1, 2	1	2
1873	43	1	.....	Ex	2	1–3	1, 2	2, 3
1874	43	2	.....	Ex	2–4	.....	1	2
1875	44	1	.....	Ex	2	1–5	1	2
1876	44	2	.....	Ex	2	1–6	1	2
1877	45	2	.....	Ex	2–6	.....	1	2
1878	45	3	.....	Ex	2–7	.....	1	2
1879	46	2	.....	Ex	2–7	.....	1	2
1880	46	3	.....	Ex	2–7	.....	1	2
1881	47	1	.....	Ex	2–7	.....	1	2
1882	47	2	.....	Ex	2–7	.....	1	2
1883	48	1	.....	Ex	2–7	.....	1	2
1884	48	2	.....	Ex	2–8	.....	1	2

Annual Reports of the Secretary of War, with accompanying documents—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1885	49	1	.....	Ex..	2–8	.....	1	2
1886	49	2	.....	Ex..	2–6	.....	1	2
1887	50	1	.....	Ex..	2–7	.....	1	2
1888	50	2	.....	Ex..	2–7	.....	1	2
1889	51	1	.....	Ex..	2–7	.....	1	2
1890	51	2	.....	Ex..	2–8	.....	1	2
1891	52	1	.....	Ex..	2–11	.....	1	2

ANNUAL REPORTS OF THE CHIEF OF ENGINEERS, U. S. ARMY.

[The reports for previous years will be found in the volumes containing the reports of the Secretary of War.]

Year.	Congress.	Session.	House.	Volume.	Part.	Number.	Part.	Volume.	Part.
1867	40	2	Ex..	2	2	1	....	2	....
1868	40	3	Ex..	3	2	1	....	2	....
1869	41	2	Ex..	2	2	1	....	2	....
1870	41	3	Ex..	2	2	1	....	2	....
1871	42	2	Ex..	2	2	1	2	2	....
1872	42	3	Ex..	2	2	1	2	2	....
1873	43	1	Ex..	2	2	1	2	2	....
1874	43	2	Ex..	3,4	.....	1	2	2,3	....
1875	44	1	Ex..	2	2,3	1	2	2	1,2
1876	44	2	Ex..	2	2–4	1	2	2	1–3
1877	45	2	Ex..	3,4	.....	1	2	2	1,2
1878	45	3	Ex..	3–5	.....	1	2	2	1–3
1879	46	2	Ex..	3–5	.....	1	2	2	1–3
1880	46	3	Ex..	3–5	.....	1	2	2	1–3
1881	47	1	Ex..	3–5	.....	1	2	2	1–3
1882	47	2	Ex..	3–5	.....	1	2	2	1–3
1883	48	1	Ex..	3–5	.....	1	2	2	1–3
1884	48	2	Ex..	3–6	.....	1	2	2	1–4
1885	49	1	Ex..	3–6	.....	1	2	2	1–4
1886	49	2	Ex..	3–5	.....	1	2	2	1–3
1887	50	1	Ex..	3–6	.....	1	2	2	1–4
1888	50	2	Ex..	3–6	.....	1	2	2	1–4
1889	51	1	Ex..	3–6	.....	1	2	2	1–4
1890	51	2	Ex..	3–6	.....	1	2	2	1–4
1891	52	1	Ex..	3–8	.....	1	2	2	1–6

ANNUAL REPORTS OF THE CHIEF OF ORDNANCE, U. S. ARMY.

[The reports for previous years will be found in the volumes containing the reports of the Secretary of War.]

Year.	Congress.	Session.	House.	Volume.	Part.	Number.	Part.	Volume.
1872	42	3	Ex..	2	1	1	2	1
1873	43	1	Ex..	2	3	1	3	3
1874	43	2	Ex..	2	....	1	2	1
1875	44	1	Ex..	2	4	1	2	3
1876	44	2	Ex..	2	5	1	2	3
1877	45	2	Ex..	5	....	1	2	3
1878	45	3	Ex..	6	....	1	2	3
1879	46	2	Ex..	6	....	1	3	3
1880	46	3	Ex..	6	....	1	2	3
1881	47	1	Ex..	6	....	1	2	3
1882	47	2	Ex..	6	....	1	2	3
1883	48	1	Ex..	6	....	1	2	3
1884	48	2	Ex..	7	....	1	2	3
1885	49	1	Ex..	7	....	1	2	3
1886	49	2	Ex..	6	....	1	2	3
1887	50	1	Ex..	7	....	1	2	3
1888	50	2	Ex..	7	....	1	2	3
1889	51	1	Ex..	7	....	1	2	3
1890	51	2	Ex..	7	....	1	2	3
1891	52	1	Ex..	9	....	1	2	3

ANNUAL REPORTS OF THE CHIEF SIGNAL OFFICER, U. S. ARMY.

Year.	Congress.	Session.	House.	Volume.	Part.	Number.	Part.	Volume.
1867	40	2	Ex..	2	1	1	2	1
1868	40	3	Ex..	3	1	1	3	1
1869	41	2	Ex..	2	1	1	2	1
1870	41	3	Ex..	2	1	1	2	1
1871	42	2	Ex..	2	1	1	2	1
1872	42	3	Ex..	2	1	1	2	1
1873	43	1	Ex..	2	1	1	2	1
1874	43	2	Ex..	2	....	1	2	1
1875	44	1	Ex..	2	5	1	2	4
1876	44	2	Ex..	2	6	1	2	4
1877	45	2	Ex..	6	....	1	2	4
1878	45	3	Ex..	7	....	1	2	4
1879	46	2	Ex..	7	....	1	4	4
1880	46	3	Ex..	7	....	1	2	4
1881	47	1	Ex..	7	....	1	2	4
1882	47	2	Ex..	7	....	1	2	4
1883	48	1	Ex..	7	....	1	2	4
1884	48	2	Ex..	8	....	1	2	4
1885	49	1	Ex..	8	....	1	2	4
1886	49	2	Ex..	6	....	1	2	4
1887	50	1	Ex..	7	....	1	2	3
1888	50	2	Ex..	7	....	1	2	4
1889	51	1	Ex..	7	....	1	2	4
1890	51	2	Ex..	8	....	1	2	4
1891	52	1	Ex..	10	....	1	2	4

RECORDS OF THE WAR OF THE REBELLION.

[Vols. I to IV of this series are not included in the Congressional set of documents.]

Volume.	Part.	Congress.	Session.	House.	Volume.	Number.	Part.
5	.....	47	1	Mis .	18	54	....
6	.....	47	1	Mis .	23	63	....
7	.....	47	1	Mis .	27	67	....
8	.....	47	2	Mis .	6	27	....
9	.....	47	2	Mis .	12	41	....
10	1	48	1	Mis .	13	26	....
	2	48	1	Mis .	17	32	....
11	1	48	1	Mis .	28	65	....
	2	48	1	Mis .	29	65	....
	3	48	1	Mis .	30	65	....
12	1	48	2	Mis .	12	37	1
	2	48	2	Mis .	13	37	2
	*2	49	2	Mis .	3	54	....
	3	48	2	Mis .	14	37	3
13	.....	49	1	Mis .	3	21	....
14	.....	49	1	Mis .	4	22	....
15	.....	49	1	Mis .	11	164	....
16	1	49	1	Mis .	14	273	....
	2	49	1	Mis .	16	338	....
17	1	49	1	Mis .	20	371	....
	2	49	2	Mis .	2	53	....
18	.....	50	1	Mis .	7	325	....
19	1	50	1	Mis .	8	338	....
	2	50	1	Mis .	9	339	....
20	1	50	1	Mis .	10	341	....
	2	50	1	Mis .	11	342	....
21	.....	50	1	Mis .	13	387	....
22	1	50	1	Mis .	16	585	....
	2	50	2	Mis .	3	60	....
23	1	50	2	Mis .	6	113	....
	2	50	2	Mis .	7	129	....
24	1	51	1	Mis .	2	4	....
	2	51	1	Mis .	3	5	....
	3	51	1	Mis .	4	6	....
25	1	51	1	Mis .	7	44	....
	2	51	1	Mis .	8	45	....
26	1	51	1	Mis .	10	105	....
	2	51	1	Mis .	11	106	....
27	1	51	1	Mis .	12	146	....
	2	51	1	Mis .	13	147	....
	3	51	1	Mis .	14	148	....
28	1	51	1	Mis .	19	223	....
	2	51	1	Mis .	22	228	....
29	1	51	1	Mis .	30	240	....
	2	51	1	Mis .	31	241	....

* Supplement.

Records of the War of the Rebellion—Continued.

Volume.	Part.	Congress.	Session.	House.	Volume.	Number.	Part.
30	1	51	1	Mis .	33	245	....
	2	51	1	Mis .	34	246	....
	3	51	1	Mis .	35	247	....
	4	51	1	Mis .	36	248	....
31	1	51	2	Mis .	2	12	....
	2	51	2	Mis .	3	13	....
	3	51	2	Mis .	4	14	....
32	1	51	2	Mis .	5	76	....
	2	51	2	Mis .	6	77	....
	3	51	2	Mis .	7	78	....
33	.....	52	1	Mis .	2	12	....
34	1	52	1	Mis .	4	13	1
	2	52	1	Mis .	5	13	2
	3	52	1	Mis .	6	13	3
	4	52	1	Mis .	7	13	4
35	1	52	1	Mis .	8	14	1
	2	52	1	Mis .	9	14	2
36	1	52	1	Mis .	10	15	1
	2	52	1	Mis .	11	15	2
	3	52	1	Mis .	12	15	3
37	1	52	1	Mis .	13	16	1
	2	52	1	Mis .	14	16	2
38	1	52	1	Mis .	22	48	1
	2	52	1	Mis .	23	48	2
	3	52	1	Mis .	24	48	3
	4	52	1	Mis .	25	48	4
	5	52	1	Mis .	26	48	5
39	1	52	1	Mis .	35	233	1
	2	52	1	Mis .	36	233	2
	3	52	1	Mis .	37	233	3
40	1	52	1	Mis .	46	338	1
	2	52	1	Mis .	47	338	2
	3	52	1	Mis .	48	338	3

ANNUAL REPORTS OF THE SECRETARY OF THE NAVY, WITH ACCOMPANYING DOCUMENTS.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1825	19	1	Doc.	.....	1	....	2	....
	19	1	.....	Doc.	1	....	1	....
1826	19	2	Doc.	.....	1	....	1	....
	19	2	.....	Doc.	1	....	2	....
1827	20	1	Doc.	.....	1	....	1	....
	20	1	.....	Doc.	1	....	1	....
1828	20	2	Doc.	.....	1	....	1	....
	20	2	.....	Doc.	1	....	2	....
1829	21	1	Doc.	.....	1	....	1	....
	21	1	.....	Doc.	1	....	2	....
1830	21	2	Doc.	.....	1	....	1	....
	21	2	.....	Doc.	1	....	2	....
1831	22	1	Doc.	.....	1	....	1	....
	22	1	.....	Doc.	1	....	2	....
1832	22	2	.....	Doc.	1	....	2	....
1833	23	1	Doc.	.....	1	....	1	....
	23	1	.....	Doc.	1	....	1	....
1834	23	2	Doc.	.....	1	....	1	....
	23	2	.....	Doc.	1	....	2	....
1835	24	1	Doc.	.....	1	....	1	....
	24	1	.....	Doc.	1	....	2	....
1836	24	2	Doc.	.....	1	....	1	....
	24	2	.....	Doc.	1	....	2	....
1837	25	2	Doc.	.....	1	....	1	....
	25	2	.....	Doc.	1	....	3	....
1838	25	3	Doc.	.....	1	....	1	....
	25	3	.....	Doc.	1	....	2	....
1839	26	1	Doc.	.....	1	....	1	....
	26	1	.....	Doc.	1	....	2	....
1840	26	2	Doc.	.....	1	....	1	....
	26	2	.....	Doc.	1	....	2	....
1841	27	2	Doc.	.....	1	....	1	....
	27	2	.....	Doc.	1	....	2	....
1842	27	3	Doc.	.....	1	....	1	....
	27	3	.....	Doc.	1	....	2	....
1843	28	1	Doc.	.....	1	....	1	....
	28	1	.....	Doc.	1	....	2	....
1844	28	2	Doc.	.....	1	....	1	....
	28	2	.....	Doc.	1	....	2	....
1845	29	1	Doc.	.....	1	....	1	....
	29	1	.....	Doc.	1	....	2	....
1846	29	2	Doc.	.....	1	....	1	....
	29	2	.....	Doc.	1	....	4	....
1847	30	1	Ex..	.....	1	....	1	....
	30	1	.....	Ex..	2	....	8	....
1848	30	2	.....	Ex..	1	....	1	....
1849	31	1	.....	.....	1	....	1	....
	31	1	Ex..	Ex..	3	1	5	1
1850	31	2	Ex..	.....	1	....	1	....
	31	2	.....	Ex..	1	....	1	....

Annual Reports of the Secretary of the Navy, with accompanying documents—Continued

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1851	32	1	Ex..	.....	2	....	1	2
	32	1	.....	Ex..	2	2	2	2
1852	32	2	Ex..	.....	2	....	1	2
	32	2	.....	Ex..	1	2	1	2
1853	33	1	Ex..	.....	3	....	1	3
	33	1	.....	Ex..	1	3	1	3
1854	33	2	.....	Ex..	1	2	1	2
1855	34	1	Ex..	.....	3	....	1	3
	34	1	.....	Ex..	1	3	1	3
1856	34	3	Ex..	Ex..	3	....	5	2
	34	3	.....	.....	1	2	1	2
1857	35	1	Ex..	.....	4	....	11	3
	35	1	.....	Ex..	2	3	2	3
1858	35	2	Ex..	.....	4	....	1	4
	35	2	.....	Ex..	2	4	2	4
1859	36	1	Ex..	.....	3	....	2	3
1860	36	2	Ex..	.....	3	1	1	3
1861	37	2	Ex..	.....	3	1	1	3
1862	37	3	.....	Ex..	3	....	1	3
1863	38	1	.....	Ex..	4	....	1	4
1864	38	2	.....	Ex..	6	....	1	6
1865	39	1	.....	Ex..	5	....	1	....
1866	39	2	.....	Ex..	4	....	1	6
1867	40	2	.....	Ex..	4	....	1	....
1868	40	3	.....	Ex..	4	....	1	....
1869	41	2	.....	Ex..	1	....	1	....
1870	41	3	.....	Ex..	3	....	1	....
1871	42	2	.....	Ex..	4	....	1	3
1872	42	3	.....	Ex..	4	....	1	3
1873	43	1	.....	Ex..	3	....	1	3
1874	43	2	.....	Ex..	5	....	1	3
1875	44	1	.....	Ex..	3	....	1	3
1876	44	2	.....	Ex..	3	....	1	3
1877	45	2	.....	Ex..	7	....	1	3
1878	45	3	.....	Ex..	8	....	1	3
1879	46	2	.....	Ex..	8	....	1	3
1880	46	3	.....	Ex..	8	....	1	3
1881	47	1	.....	Ex..	8	....	1	3
1882	47	2	.....	Ex..	8	....	1	3
1883	48	1	.....	Ex..	8	....	1	3
1884	48	2	.....	Ex..	9	....	1	3
1885	49	1	.....	Ex..	9	....	1	3
1886	49	2	.....	Ex..	7	....	1	3
1887	50	1	.....	Ex..	8	....	1	3
1888	50	2	.....	Ex..	8	....	1	3
1889	51	1	.....	Ex..	8, 9	....	1	3
1890	51	2	.....	Ex..	9	....	1	3
1891	52	1	.....	Ex..	12	....	1	3

ANNUAL REPORTS OF THE POSTMASTER-GENERAL.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1825	19	1	Doc.	.....	1	....	2	....
	19	1	.....	Doc.	1	....	1	....
1826	19	2	Doc.	.....	1	....	1	....
	19	2	.....	Doc.	1	....	2	....
1827	20	1	Doc.	.....	1	....	1	....
	20	1	.....	Doc.	1	....	1	....
1828	20	2	Doc.	.....	1	....	1	....
	20	2	.....	Doc.	1	....	2	....
1829	21	1	Doc.	.....	1	....	1	....
	21	1	.....	Doc.	1	....	2	....
1830	21	2	Doc.	.....	1	....	1	....
	21	2	.....	Doc.	1	....	2	....
1831	22	1	Doc.	.....	1	....	1	....
	22	1	.....	Doc.	1	....	2	....
1832	22	2	.....	Doc.	1	....	2	....
1833	23	1	Doc.	.....	1	....	1	....
	23	1	.....	Doc.	1	....	1	....
1834	23	2	Doc.	.....	1	....	1	....
	23	2	.....	Doc.	1	....	2	....
1835	24	1	Doc.	.....	1	....	1	....
	24	1	.....	Doc.	1	....	2	....
1836	24	2	Doc.	.....	1	....	1	....
	24	2	.....	Doc.	1	....	2	....
1837	25	2	Doc.	.....	1	....	1	....
	25	2	.....	Doc.	1	....	3	....
1838	25	3	Doc.	.....	1	....	1	....
	25	3	.....	Doc.	1	....	2	....
1839	26	1	Doc.	.....	1	....	1	....
	26	1	.....	Doc.	1	....	2	....
1840	26	2	Doc.	.....	1	....	1	....
	26	2	.....	Doc.	1	....	2	....
1841	27	2	Doc.	.....	1	....	1	....
	27	2	.....	Doc.	1	....	2	....
1842	27	3	Doc.	.....	1	....	1	....
	27	3	.....	Doc.	1	....	2	....
1843	28	1	Doc.	.....	1	....	1	....
	28	1	.....	Doc.	1	....	2	....
1844	28	2	Doc.	.....	1	....	1	....
	28	2	.....	Doc.	1	....	2	....
1845	29	1	Doc.	.....	1	....	1	....
	29	1	.....	Doc.	1	....	2	....
1846	29	2	Doc.	.....	1	....	1	....
	29	2	.....	Doc.	1	....	4	....
1847	30	1	Ex..	.....	1	....	1	....
	30	1	.....	Ex..	2	....	8	....
1848	30	2	.....	Ex..	1	....	1	....
1849	31	1	Ex..	.....	1	....	1	....
	31	1	.....	Ex..	3	1	5	1
1850	31	2	Ex..	.....	1	....	1	....
	31	2	.....	Ex..	1	....	1	....

Annual Reports of the Postmaster-General—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1851	32	1	Ex..	.....	2	...	1	2
	32	1	.....	Ex..	2	2	2	2
1852	32	2	Ex..	.....	2	....	1	2
	32	2	.....	Ex..	1	2	1	2
1853	33	1	Ex..	.....	3	....	1	3
	33	1	.....	Ex..	1	3	1	3
1854	33	2	Ex..	.....	2	2	1	2
	33	2	.....	Ex..	1	2	1	2
1855	34	1	Ex..	.....	3	....	1	3
	34	1	.....	Ex..	1	3	1	3
1856	34	3	Ex..	.....	3	....	5	2
	34	3	.....	Ex..	1	3	1	3
1857	35	1	Ex..	.....	4	....	11	3
	35	1	.....	Ex..	2	3	2	3
1858	35	2	Ex..	.....	4	....	1	4
	35	2	.....	Ex..	2	4	2	4
1859	36	1	Ex..	.....	3	....	2	3
1860	36	2	Ex..	.....	3	1	1	3
1861	37	2	Ex..	.....	3	1	1	3
1862	37	3	.....	Ex..	4	....	1	4
1863	38	1	.....	Ex..	5	....	1	5
1864	38	2	.....	Ex..	5	....	1	5
1865	39	1	.....	Ex..	6	....	1	....
1866	39	2	.....	Ex..	4	....	1	6
1867	40	2	.....	Ex..	4	....	1	....
1868	40	3	.....	Ex..	4	....	1	....
1869	41	2	.....	Ex..	1	....	1	....
1870	41	3	.....	Ex..	3	....	1	....
1871	42	2	.....	Ex..	4	....	1	4
1872	42	3	.....	Ex..	4	....	1	4
1873	43	1	.....	Ex..	3	....	1	4
1874	43	2	.....	Ex..	5	....	1	4
1875	44	1	.....	Ex..	3	....	1	4
1876	44	2	.....	Ex..	3	....	1	4
1877	45	2	.....	Ex..	7	....	1	4
1878	45	3	.....	Ex..	8	....	1	4
1879	46	2	.....	Ex..	8	....	1	4
1880	46	3	.....	Ex..	8	....	1	4
1881	47	1	.....	Ex..	8	....	1	4
1882	47	2	.....	Ex..	9	....	1	4
1883	48	1	.....	Ex..	9	....	1	4
1884	48	2	.....	Ex..	10	....	1	4
1885	49	1	.....	Ex..	10	....	1	4
1886	49	2	.....	Ex..	7	....	1	4
1887	50	1	.....	Ex..	9	....	1	4
1888	50	2	.....	Ex..	9	....	1	4
1889	51	1	.....	Ex..	10	....	1	4
1890	51	2	.....	Ex..	10	....	1	4
1891	52	1	.....	Ex..	13	....	1	4

ANNUAL REPORTS OF THE SECRETARY OF THE INTERIOR, WITH ACCOMPANYING DOCUMENTS.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1849	31	1	Ex.	.....	2	.....	1	2
	31	1	.....	Ex.	3	2	5	2
1850	31	2	Ex.	.....	1	.....	1	....
	31	2	.....	Ex.	1	.....	1	....
1851	32	1	Ex.	.....	2, 3	.....	1	2, 3
	32	1	.....	Ex.	2	.....	2	2, 3
1852	32	2	Ex.	.....	1	.....	1	1
	32	2	.....	Ex.	1	1	1	1
1853	33	1	Ex.	.....	1	.....	1	1
	33	1	.....	Ex.	1	1	1	1
1854	33	2	Ex.	.....	1	.....	1	1
	33	2	.....	Ex.	1	1	1	1
1855	34	1	Ex.	.....	1	.....	1	1
	34	1	.....	Ex.	1	1	1	1
1856	34	3	Ex.	.....	2	.....	5	1
	34	3	.....	Ex.	1	1	1	1
1857	35	1	Ex.	.....	2	.....	11	1
	35	1	.....	Ex.	2	1	2	1
1858	35	2	Ex.	.....	1	.....	1	1
	35	2	.....	Ex.	2	1	2	1
1859	36	1	Ex.	.....	1	.....	2	1
1860	36	2	Ex.	.....	1	.....	1	1
1861	37	2	Ex.	.....	1	.....	1	1
1862	37	3	.....	Ex.	2	.....	1	2
1863	38	1	.....	Ex.	3	.....	1	3
1864	38	2	.....	Ex.	5	.....	1	5
1865	39	1	.....	Ex.	2	.....	1	....
1866	39	2	.....	Ex.	2	.....	1	4
1867	40	2	.....	Ex.	3	.....	1	....
1868	40	3	.....	Ex.	2	.....	1	....
1869	41	2	.....	Ex.	3	.....	1	....
1870	41	3	.....	Ex.	4	1, 2	1	....
1871	42	2	.....	Ex.	3	1, 2	1	5
1872	42	3	.....	Ex.	3	1, 2	1	5
1873	43	1	.....	Ex.	4	1, 2	1	5
1874	43	2	.....	Ex.	6, 7	.....	1	5
1875	44	1	.....	Ex.	4	1, 2	1	5
1876	44	2	.....	Ex.	4	1, 2	1	5
1877	45	2	.....	Ex.	8, 9	.....	1	5
1878	45	3	.....	Ex.	9, 10	.....	1	5
1879	46	2	.....	Ex.	9–11	.....	1	5
1880	46	3	.....	Ex.	9–11	.....	1	5
1881	47	1	.....	Ex.	9–12	.....	1	5
1882	47	2	.....	Ex.	10–13	.....	1	5
1883	48	1	.....	Ex.	10–12	.....	1	5
1884	48	2	.....	Ex.	11–14	.....	1	5

Annual Reports of the Secretary of the Interior, with accompanying documents—Cont'd.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1885	49	1	.....	Ex..	11–15	.....	1	5
1886	49	2	.....	Ex..	8–11	.....	1	5
1887	50	1	.....	Ex..	10, 11	.....	1	5
					12	1, 2	1	5
					13, 14	.....	1	5
1888	50	2	.....	Ex..	10–15	.....	1	5
1889	51	1	.....	Ex..	11–13	.....	1	5
					14	1, 2	1	5
					15	1, 2	1	5
1890	51	2	.....	Ex..	11–16	.....	1	5
1891	52	1	.....	Ex..	14–19	.....	1	5

ANNUAL REPORTS OF THE COMMISSIONER OF INDIAN AFFAIRS.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.	Volume.
1825	19	1	Doc.	.....	1	....	2	....	....
	19	1	Doc.	.....	1	....	1	....	....
1826	19	2	Doc.	.....	1	....	1	....	....
	19	2	.....	Doc.	1	....	2	....	....
1827	20	1	Doc.	.....	1	....	1	....	....
	20	1	.....	Doc.	1	....	1	....	....
1828	20	2	Doc.	.....	1	....	1	....	....
	20	2	.....	Doc.	1	....	2	....	....
1829	21	1	Doc.	.....	1	....	1	....	....
	21	1	.....	Doc.	1	....	2	....	....
1830	21	2	Doc.	.....	1	....	1	....	....
	21	2	.....	Doc.	1	....	2	....	....
1831	22	1	Doc.	.....	1	....	1	....	....
	22	1	.....	Doc.	1	....	2	....	....
1832	22	2	.....	Doc.	1	....	2	....	....
1833	23	1	Doc.	.....	1	....	1	....	....
	23	1	.....	Doc.	1	....	1	....	....
1834	23	2	Doc.	.....	1	....	1	....	....
	23	2	.....	Doc.	1	....	2	....	....
1835	24	1	Doc.	.....	1	....	1	....	....
	24	1	.....	Doc.	1	....	2	....	....
1836	24	2	Doc.	.....	1	....	1	....	....
	24	2	.....	Doc.	1	....	2	....	....
1837	25	2	Doc.	.....	1	....	1	....	....
	25	2	.....	Doc.	1	....	3	....	....
1838	25	3	Doc.	.....	1	....	1	....	....
	25	3	.....	Doc.	1	....	2	....	....
1839	26	1	Doc.	.....	1	....	1	....	....
	26	1	.....	Doc.	1	....	2	....	....
1840	26	2	Doc.	.....	1	....	1	....	....
	26	2	.....	Doc.	1	....	2	....	....
1841	27	2	Doc.	.....	1	....	1	....	....
	27	2	.....	Doc.	1	....	2	....	....
1842	27	3	Doc.	.....	1	....	1	....	....
	27	3	.....	Doc.	1	....	2	....	....
1843	28	1	Doc.	.....	1	....	1	....	....
	28	1	.....	Doc.	1	....	2	....	....
1844	28	2	Doc.	.....	1	....	1	....	....
	28	2	.....	Doc.	1	....	2	....	....
1845	29	1	Doc.	.....	1	....	1	....	....
	29	1	.....	Doc.	1	....	2	....	....
1846	29	2	Doc.	.....	1	....	1	....	....
	29	2	.....	Doc.	1	....	4	....	....
1847	30	1	Ex..	.....	1	....	1	....	....
	30	1	.....	Ex..	2	....	8	....	....
1848	30	2	.....	Ex..	1	....	1	....	....
1849	31	1	Ex..	.....	2	....	1	2	....
	31	1	.....	Ex..	3	2	5	2	....
1850	31	2	Ex..	.....	1	....	1	....	....
	31	2	.....	Ex..	1	....	1	....	....

Annual Reports of the Commissioner of Indian Affairs—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.	Volume.
1851	32	1	Ex	.....	3	....	1	3	....
	32	1	.....	Ex	2	....	2	3	....
1852	32	2	Ex	.....	1	....	1	1	....
	32	2	.....	Ex	1	1	1	1	....
1853	33	1	Ex	.....	1	....	1	1	....
	33	1	.....	Ex	1	1	1	1	....
1854	33	2	Ex	.....	1	....	1	1	....
	33	2	.....	Ex	1	1	1	1	....
1855	34	1	Ex	.....	1	....	1	1	....
	34	1	.....	Ex	1	1	1	1	....
1856	34	3	Ex	.....	2	....	5	1	....
	34	3	.....	Ex	1	1	1	1	....
1857	35	1	Ex	.....	2	....	11	1	....
	35	1	.....	Ex	2	1	2	1	....
1858	35	2	Ex	.....	1	....	1	1	....
	35	2	.....	Ex	2	1	2	1	....
1859	36	1	Ex	.....	1	....	2	1	....
1860	36	2	Ex	.....	1	....	1	1	....
1861	37	2	Ex	.....	1	....	1	1	....
1862	37	3	.....	Ex	2	....	1	2	....
1863	38	1	.....	Ex	3	....	1	3	....
1864	38	2	.....	Ex	5	....	1	5	....
1865	39	1	.....	Ex	2	....	1	....	....
1866	39	2	.....	Ex	2	....	1	4	....
1867	40	2	.....	Ex	3	....	1	....	....
1868	40	3	.....	Ex	2	....	1	....	....
1869	41	2	.....	Ex	3	....	1	....	....
1870	41	3	.....	Ex	4	1	1	....	....
1871	42	2	.....	Ex	3	1	1	5	1
1872	42	3	.....	Ex	3	1	1	5	1
1873	43	1	.....	Ex	4	1	1	5	1
1874	43	2	.....	Ex	6	....	1	5	1
1875	44	1	.....	Ex	4	1	1	5	1
1876	44	2	.....	Ex	4	1	1	5	1
1877	45	2	.....	Ex	8	....	1	5	1
1878	45	3	.....	Ex	9	....	1	5	1
1879	46	2	.....	Ex	9	....	1	5	1
1880	46	3	.....	Ex	9	....	1	5	1
1881	47	1	.....	Ex	10	....	1	5	2
1882	47	2	.....	Ex	11	....	1	5	2
1883	48	1	.....	Ex	11	....	1	5	2
1884	48	2	.....	Ex	12	....	1	5	2
1885	49	1	.....	Ex	12	....	1	5	2
1886	49	2	.....	Ex	8	....	1	5	2
1887	50	1	.....	Ex	11	....	1	5	2
1888	50	2	.....	Ex	11	....	1	5	2
1889	51	1	.....	Ex	12	....	1	5	2
1890	51	2	.....	Ex	12	....	1	5	2
1891	52	1	.....	Ex	15	....	1	5	2

ANNUAL REPORTS OF THE COMMISSIONER OF THE GENERAL LAND OFFICE.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.	Volume.
1825	19	1	Doc	.....	2	....	20	....	....
1826	19	2	Doc	.....	1	....	1	....	....
	19	2	.....	Doc	1	....	2	....	....
1827	20	1	Doc	.....	1	....	1	....	....
	20	1	.....	Doc	1	....	1	....	....
1828	20	2	Doc	.....	1	....	1	....	....
	20	2	.....	Doc	1	....	2	....	....
1829	21	1	Doc	.....	1	....	1	....	....
	21	1	.....	Doc	1	....	2	....	....
1830	21	2	Doc	.....	1	....	1	....	....
	21	2	.....	Doc	1	....	2	....	....
1831 *	.....	....	.....	.....	....	....	....	....	....
1832	22	2	.....	Doc	1	....	3	....	....
1833	23	1	Doc	.....	1	....	9	....	....
	23	1	.....	Doc	1	....	15	....	....
1834	23	2	Doc	.....	1	....	2	....	....
	23	2	.....	Doc	1	...	3	....	....
1835	24	1	Doc	.....	1	....	3	....	....
	24	1	.....	Doc	1	....	5	....	....
1836	24	2	Doc	.....	1	....	3	....	....
	24	2	.....	Doc	1	....	6	....	....
1837	25	2	Doc	.....	1	....	11	....	....
	25	2	.....	Doc	2	....	23	....	....
1838	25	3	Doc	.....	1	....	17	....	....
	25	3	.....	Doc	2	....	29	....	....
1839	26	1	Doc	.....	2	....	21	....	....
	26	1	.....	Doc	2	....	12	....	...
1840	26	2	Doc	.....	3	....	61	....	....
	26	2	.....	Doc	2	....	38	....	....
1841	27	2	Doc	.....	2	....	22	....	....
	27	2	.....	Doc	1	....	24	....	....
1842	27	3	Doc	.....	2	....	10	....	....
	27	3	.....	Doc	2	....	18	....	....
1843	28	1	Doc	.....	2	....	15	....	....
	28	1	.....	Doc	3	....	37	....	....
1844	28	2	Doc	.....	1	....	7	....	....
	28	2	.....	Doc	1	....	15	....	....
1845	29	1	Doc	.....	3	....	16	....	....
	29	1	.....	Doc	2	....	12	....	....
1846	29	2	.....	Doc	2	....	9	....	....
1847	30	1	Ex	.....	2	....	2	....	....
1848	30	2	Ex	.....	2	....	2	....	....
	30	2	.....	Ex	3	....	12	....	....
1849	31	1	Ex	.....	2	....	1	2	....
	31	1	.....	Ex	3	2	5	2	....
1850	31	2	Ex	.....	2	....	2	....	....
	31	2	.....	Ex	3	....	9	....	....

* The report for 1831 does not appear to have been included in the Congressional documents.

Annual Reports of the Commissioner of the General Land Office—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.	Volume.
1851	32	1	Ex..	.....	3	....	1	3	....
	32	1	.....	Ex..	2	....	2	3	....
1852	32	2	Ex..	.....	1	....	1	1	....
	32	2	.....	Ex..	1	1	1	1	....
1853	33	1	Ex..	.....	1	....	1	1	....
	33	1	.....	Ex..	1	1	1	1	....
1854	33	2	Ex..	.....	1	....	1	1	....
	33	2	.....	Ex..	1	1	1	1	....
1855	34	1	Ex..	.....	1	....	1	1	....
	34	1	.....	Ex..	1	1	1	1	....
1856	34	3	Ex..	.....	2	....	5	1	....
	34	3	.....	Ex..	1	1	1	1	....
1857	35	1	Ex..	.....	2	....	11	1	....
	35	1	.....	Ex..	2	1	2	1	....
1858	35	2	Ex..	.....	1	....	1	1	....
	35	2	.....	Ex..	2	1	2	1	....
1859	36	1	Ex..	.....	1	....	2	1	....
1860	36	2	Ex..	.....	1	....	1	1	....
1861	37	2	Ex..	.....	1	....	1	1	....
1862	37	3	.....	Ex..	2	....	1	2	....
1863	38	1	.....	Ex..	3	....	1	3	....
1864	38	2	.....	Ex..	5	....	1	5	....
1865	39	1	.....	Ex..	2	....	1	....	....
1866	39	2	.....	Ex..	2	....	1	4	....
1867	40	2	.....	Ex..	3	....	1	....	....
1868	40	3	.....	Ex..	2	....	1	....	....
1869	41	2	.....	Ex..	3	....	1	....	....
1870	41	3	.....	Ex..	4	1	1	....	....
1871	42	2	.....	Ex..	3	1	1	5	1
1872	42	3	.....	Ex..	3	1	1	5	1
1873	43	1	.....	Ex..	4	1	1	5	1
1874	43	2	.....	Ex..	6	....	1	5	1
1875	44	1	.....	Ex..	4	1	1	5	1
1876	44	2	.....	Ex..	4	1	1	5	1
1877	45	2	.....	Ex..	8	....	1	5	1
1878	45	3	.....	Ex..	9	....	1	5	1
1879	46	2	.....	Ex..	9	....	1	5	1
1880	46	3	.....	Ex..	9	....	1	5	1
1881	47	1	.....	Ex..	9	....	1	5	1
1882	47	2	.....	Ex..	10	....	1	5	1
1883	48	1	.....	Ex..	10	....	1	5	1
1884	48	2	.....	Ex..	11	....	1	5	1
1885	49	1	.....	Ex..	11	....	1	5	1
1886	49	2	.....	Ex..	8	....	1	5	2
1887	50	1	.....	Ex..	10	....	1	5	1
1888	50	2	.....	Ex..	10	....	1	5	1
1889	51	1	.....	Ex..	11	....	1	5	1
1890	51	2	.....	Ex..	11	....	1	5	1
1891	52	1	.....	Ex..	14	....	1	5	1

ANNUAL REPORTS OF THE COMMISSIONER OF PATENTS.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1837	25	2	Doc.	.....	2	.....	105	.....
	25	2	.....	Doc.	5	.....	112	.....
1838	25	3	.....	Doc.	3	.....	80	.....
1839	26	1	Doc.	.....	3	.....	111	.....
	26	1	.....	Doc.	3	.....	106	.....
1840	26	2	Doc.	.....	4	.....	152	.....
1841	27	2	Doc.	.....	3	.....	169	.....
1842	27	3	Doc.	.....	3	.....	129	.....
	27	3	.....	Doc.	3	.....	109	.....
1843	28	1	Doc.	.....	3	.....	150	.....
	28	1	.....	Doc.	4	.....	177	.....
1844	28	2	Doc.	.....	3	.....	75	.....
	28	2	.....	Doc.	3	.....	78	.....
1845	29	1	Doc.	.....	6	.....	307	.....
	29	1	.....	Doc.	5	.....	140	.....
1846	29	2	.....	Doc.	3	.....	52	.....
1847	30	1	.....	Ex..	6	.....	54	.....
1848	30	2	.....	Ex..	6	.....	59	.....
1849	31	1	Ex..	.....	7	.....	15	1
	31	1	.....	Ex..	6	1	20	1
1850	31	2	.....	Ex..	6	1	32	1
1851	32	1	Ex..	.....	12	.....	118	1
	32	1	.....	Ex..	10	1	102	1
1852	32	2	Ex..	.....	9	.....	55	1
	32	2	.....	Ex..	9	1	65	1
1853	33	1	Ex..	.....	6	.....	27	1
	33	1	.....	Ex..	7	1	39	1
1854	33	2	Ex..	.....	8, 9	.....	42	1, 2
	33	2	.....	Ex..	7	1, 2	59	1, 2
1855	34	1	Ex..	.....	7, 8	.....	20	1, 2
	34	1	.....	Ex..	6	1, 2	12	1, 2
1856	34	3	Ex..	.....	9–11	.....	53	1–3
	34	3	.....	Ex..	8	1–3	65	1–3
1857	35	1	Ex..	.....	8–10	.....	30	1–3
	35	1	.....	Ex..	8	1–3	32	1–3
1858	35	2	Ex..	.....	11–13	.....	47	1–3
	35	2	.....	Ex..	10	1–3	105	1–3
1859	36	1	Ex..	.....	7, 8	.....	12	1, 2
1860	36	2	Ex..	.....	5, 6	.....	7	1, 2
1861	37	2	.....	Ex..	5	1–3	53	1–3
1862	37	3	.....	Ex..	10	1, 2	52	1, 2
1863	38	1	.....	Ex..	11, 12	.....	60	1, 2
1864	38	2	.....	Ex..	10	1, 2	51	1, 3
1865	39	1	.....	Ex..	9	1–3	52	1–3
1866	39	2	.....	Ex..	16	1–3	109	1–2
1867	40	2	.....	Ex..	10	1–4	96	1–4
1868	40	3	.....	Ex..	10	1–4	52	1–4
1869	41	2	.....	Ex..	9	1–4	102	1–4

Annual Reports of the Commissioner of Patents—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1870	41	3	.....	Ex..	9	1–2	89	*1–2
1871	42	2	.....	Ex..	8	.....	86	(*)
1872†	42	3	.....	Ex..	6	.....	190	.....
1873	43	1	Ex..	.....	4	.....	58	.....
1874	43	2	.....	Ex..	10	.....	150	.....
1875	44	1	.....	Ex..	8	.....	107	.....
1876	44	2	.....	Ex..	8	.....	36	.....
1877	45	2	.....	Ex..	13	.....	61	.....
1878	45	3	.....	Ex..	14	.....	48	.....
1879	46	2	.....	Ex..	15	.....	33	.....
1880	46	3	.....	Ex..	15	.....	67	.....
1881	47	1	.....	Ex..	16	.....	6	.....
1882	47	2	.....	Ex..	20	.....	71	.....
1883	48	1	.....	Ex..	22	.....	73	.....
1884	48	2	.....	Mis.	4	.....	18	.....
1885	49	1	Mis..	.....	3	.....	71	.....
1886	49	2	.....	Mis..	5	.....	135	.....
1887	50	1	.....	Mis..	5	.....	164	.....
1888	50	2	.....	Mis..	5	.....	109	.....
1889	51	1	Mis..	.....	3	.....	78	.....
1890	51	2	Mis..	.....	4	.....	58	.....
1891	52	1	Mis..	.....	4	.....	68	.....

*Vol. III. of the report for 1870 and Vols. II and III for 1871 are not found in the leather bound Congressional set.

†In 1872 the annual volumes containing illustrations of patents were discontinued and the Official Gazette, a weekly publication, substituted in their place. From 1872 the annual volume contains list of inventions and of patentees.

ANNUAL REPORTS OF THE COMMISSIONER OF EDUCATION.

Year.	Congress.	Session.	House.	Volume.	Part.	Number.	Part.	Volume.
1868	40	2	Ex..	19	.....	299	....	....
1869	41	2	Ex..	13	.....	315	....	....
1870	41	3	Ex..	4	2	1	....	....
1871	42	2	Ex..	3	2	1	5	2
1872	42	3	Ex..	3	2	1	5	2
1873	43	1	Ex..	4	2	1	5	2
1874	43	2	Ex..	7	.....	1	5	2
1875	44	1	Ex..	4	2	1	5	2
1876	44	2	Ex..	4	2	1	5	2
1877	45	2	Ex..	9	.....	1	5	2
1878	45	3	Ex..	10	.....	1	5	2
1879	46	2	Ex..	11	.....	1	5	3
1880	46	3	Ex..	11	.....	1	5	3
1881	47	1	Ex..	12	.....	1	5	4
1882 1883	47	2	Ex..	13	.....	1	5	4
1884	48	2	Ex..	14	.....	1	5	4
1885	49	1	Ex..	14	.....	1	5	4
1886	49	2	Ex..	11	.....	1	5	4
1887	50	1	Ex..	13	.....	1	5	4
1888	50	2	Ex..	14	.....	1	5	5
1889	51	1	Ex..	15	1, 2	1	5	5
1890	51	2	Ex..	16	.....	1	5	5
1891	52	1	Ex..	19	.....	1	5	5

ANNUAL REPORTS OF THE UNITED STATES GEOLOGICAL SURVEY.

Year.	Congress.	Session.	House.	Volume.	Part.	Number.	Part.	Volume.	Part.
1880	46	3	Ex..	10	....	1	5	2	....
1881	47	1	Ex..	11	....	1	5	3	....
1882	47	2	Ex..	12	....	1	5	3	....
1883	48	1	Ex..	12	....	1	5	3	....
1884	48	2	Ex..	13	....	1	5	3	....
1885	49	1	Ex..	13	....	1	5	3	....
1886	49	2	Ex..	10	....	1	5	3	....
1887	50	1	Ex..	12	1, 2	1	5	3	1, 2
1888	50	2	Ex..	13	....	1	5	4	....
1889	51	1	Ex..	14	1, 2	1	5	4	1, 2
1890	51	2	Ex..	14, 15	....	1	5	4	1, 2
1891	52	1	Ex..	17, 18	....	1	5	4	1, 2

MONOGRAPHS OF THE UNITED STATES GEOLOGICAL SURVEY.

Volume.	Congress.	Session.	House.	Volume.	Number.	Part.
1	51	1	Mis .	17	174	....
2	48	2	Mis .	11	35	1, 2
3	47	1	Mis .	17	52	1, 2
4	47	1	Mis .	16	51	....
5	47	1	Mis .	15	50	....
6	47	2	Mis .	14	43	....
7	48	1	Mis .	37	72	....
8	48	1	Mis .	38	73	....
9	48	1	Mis .	39	74	....
10	49	1	Mis .	2	305	....
11	49	1	Mis .	2	304	....
12	49	1	Mis .	27	397	1, 2
13	50	1	Mis .	24	610	1, 2
14	50	1	Mis .	25	611	....
15	50	2	Mis .	17	147	1, 2
16	51	1	Mis .	37	249	....
17	52	1	Mis .	29	60	....
18	52	1	Mis .	30	77	....
19	52	1	Mis .	52	342	....
20	52	1	Mis .	53	343	....

BULLETINS OF THE UNITED STATES GEOLOGICAL SURVEY.

Volume.	Number.	Congress.	Session.	House.	Volume.	Part.	Number.
1	1–6	48	1	Mis .	36	....	71
2	7–14	48	2	Mis .	16	....	41
3	15–23	49	1	Mis .	1	....	33
4	24–30	49	2	Mis .	8	....	163
5	31–36	49	2	Mis .	8	....	164
6	37–41	50	1	Mis .	2	....	375
	42–46	50	2	Mis .	11	1	137
	47–54	50	2	Mis .	11	2	138
	55–61	51	1	Mis .	32	....	244
	62–65	51	2	Mis .	15	....	136
	66–70	52	1	Mis .	17	....	21
	71	52	1	Mis .	17	....	22
	72–75	52	1	Mis .	18	....	23
	76–80	52	1	Mis .	19	....	24
	81, 82	52	1	Mis .	20	....	25
	83	52	1	Mis .	20	....	336
	84–86	52	1	Mis .	45	....	337

REPORTS ON THE MINERAL RESOURCES OF THE UNITED STATES.

[These reports, from 1867 to 1876, were prepared under the supervision of the Secretary of the Treasury, and from 1882 under that of the Secretary of the Interior. No reports were made for the years 1877 to 1881.]

Year.	Congress.	Session.	House.	Volume.	Number.
1867	39	2	Ex..	7	29
1868	40	2	Ex..	16, 17	202, 273
1869	40	3	Ex..	9	54
1870	41	2	Ex..	10	207
1871	42	1	Ex..	1	10
1872	42	2	Ex..	10	211
1873	42	3	Ex..	9	210
1874	43	1	Ex..	10	141
1875	43	2	Ex..	18	177
1876	44	1	Ex..	14	159
1882	48	1	Mis .	40	75
1883 1884	49	1	Mis .	9	36
1885	49	2	Mis .	6	146
1886	50	1	Mis .	2	42
1887	50	2	Mis .	2	4
1888	51	1	Mis .	16	230
1889 1890	52	1	Mis .	42	296

ANNUAL REPORTS OF THE ATTORNEY-GENERAL OF THE UNITED STATES.

Year.	Congress.	Session.	Senate.	House.	Volume.	Number.
1870	41	3	.....	Ex..	8	90
1871	42	2	.....	Ex..	7	55
1872	42	3	Ex..	.....	1	32
1873	43	1	.....	Ex..	8	6
1874	43	2	.....	Ex..	5	7
1875	44	1	.....	Ex..	9	14
1876	44	2	.....	Ex..	5	20
1877	45	2	.....	Ex..	10	7
1878	45	3	.....	Ex..	11	7
1879	46	2	.....	Ex..	12	8
1880	46	3	.....	Ex..	18	9
1881	47	1	Ex..	.....	1	4
1882	47	2	.....	Ex..	14	8
1883	48	1	.....	Ex..	13	8
1884	48	2	.....	Ex..	21	12
1885	49	1	.....	Ex..	20	7
1886	49	2	.....	Ex..	18	8
1887	50	1	.....	Ex..	18	7
1888	50	2	.....	Ex..	19	7
1889	51	1	.....	Ex..	18	7
1890	51	2	.....	Ex..	21	7
1891	52	1	.....	Ex..	22	7

ANNUAL AGRICULTURAL REPORTS.

[These reports, from 1841 to 1862, were prepared by the Commissioner of Patents; from 1863 to 1888 by the Commissioner of Agriculture, and from 1889 by the Secretary of Agriculture.]

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1841	27	2	Doc.	.....	3	....	169	....
1842	27	3	Doc.	.....	3	....	129	....
	27	3	.....	Doc.	3	....	109	....
1843	28	1	Doc.	.....	3	....	150	....
	28	1	.....	Doc.	4	....	177	....
1844	28	2	Doc.	.....	3	....	75	....
	28	2	.....	Doc.	3	....	78	....
1845	29	1	Doc.	.....	6	....	307	....
1846	29	2	.....	Doc.	3	....	52	....
1847	30	1	.....	Ex..	6	....	54	....

Annual Agricultural Reports—Continued.

Year.	Congress.	Session.	Senate.	House.	Volume.	Part.	Number.	Part.
1848	30	2	.....	Ex..	6	....	59	....
1849	31	1	Ex..	.....	8	....	15	2
	31	1	.....	Ex..	6	2	20	2
1850	31	2	.....	Ex..	6	2	32	2
1851	32	1	Ex..	.....	13	....	118	2
	32	1	.....	Ex..	10	2	102	2
1852	32	2	Ex..	.....	9	....	55	2
	32	2	.....	Ex..	9	2	65	2
1853	33	1	Ex..	.....	7	....	27	2
	33	1	.....	Ex..	7	2	39	2
1854	33	2	Ex..	.....	10	....	42	3
	33	2	.....	Ex..	7	3	59	3
1855	34	1	Ex..	.....	9	....	20	3
	34	1	.....	Ex..	6	3	12	3
1856	34	3	Ex..	.....	12	....	53	4
	34	3	.....	Ex..	8	4	65	4
1857	35	1	Ex..	.....	11	....	30	4
	35	1	.....	Ex..	8	4	32	4
1858	35	2	Ex..	.....	14	....	47	4
	35	2	.....	Ex..	10	4	105	4
1859	36	1	Ex..	.....	6	....	11	....
1860	36	2	.....	Ex..	8	....	48	....
1861*	.....	....	.....	.....	....	....	.....	....
1862	37	3	.....	Ex..	11	....	78	....
1863	38	1	.....	Ex..	16	....	91	....
1864	38	2	.....	Ex..	12	....	68	....
1865	39	1	.....	Ex..	15	....	136	....
1866	39	2	.....	Ex..	15	....	107	....
1867	40	2	.....	Ex..	21	....	.....	....
1868	40	3	.....	Ex..	15	....	.....	....
1869	41	2	.....	Ex..	14	....	.....	....
1870	41	3	.....	Ex..	13	....	.....	....
1871	42	2	.....	Ex..	17	....	327	....
1872–1879*	.....	....	.....	.....	....	....	.....	....
1880	46	3	Ex..	.....	1	....	27	....
1881–'82	47	1	.....	Ex..	26	....	228	....
1883	47	2	.....	Ex..	25	....	109	....
1884	48	1	.....	Ex..	32	....	178	....
1885	48	2	.....	Ex..	34	....	269	....
1886	49	1	.....	Ex..	37	....	378	....
1887	49	2	.....	Ex..	28	....	201	....
1888	50	1	.....	Ex..	32	....	470	....
1889	51	1	.....	Ex..	17	....	1	7
1890	51	2	.....	Ex..	17	....	1	6
1891	52	1	.....	Ex..	20	....	1	6

* These reports are not included in the Congressional set of documents.

ANNUAL REPORTS OF THE BUREAU OF ANIMAL INDUSTRY.

Year.	Congress.	Session.	House.	Volume.	Number.
1884	48	2	Mis .	2	25
1885	48	2	Mis .	2	36
1886	49	2	Mis .	6	156
1887 1888	50	2	Mis .	12	139
1889 1890	51	1	Mis .	42	270
1891	52	1	S. Ex.	1	11

ANNUAL REPORTS OF THE COMMISSIONER OF LABOR.

Year.	Congress.	Session.	House.	Volume.	Number.	Part.	Volume.
1885	49	1	Ex ..	15	1	5	5
1886	49	2	Ex ..	11	1	5	4
1887	50	1	Ex ..	14	1	5	5
1888	50	2	Ex ..	15	1	5	6
1889	51	1	Ex ..	36	336	....	....
1890	51	2	Ex ..	37	265	....	....
1891	52	1	Ex ..	38	232	....	....

ANNUAL REPORTS OF THE SMITHSONIAN INSTITUTION.

Year.	Congress.	Session.	Senate.	House.	Volume	Number.	Part.
1846	29	2	Doc .	.....	3	211	....
1847	30	1	Mis .	.....	1	23	....
1848	30	2	.....	Mis .	1	48	....
1849	31	1	Mis .	.....	2	120	....
	31	1	.....	Mis .	2	50	....
1850	(*)	....	Mis .	.....	.....	1	....
1851	32	1	Mis .	.....	1	108	....
1852	32	2	Mis .	.....	1	53	....
1853†	33	1	Mis .	.....	1	73	....

* Special session, 1851.

† The first six reports of the Secretary are reprinted in connection with that for 1853.

Annual Reports of the Smithsonian Institution—Continued

Year.	Congress.	Session.	Senate.	House.	Volume.	Number.	Part.
1854	33	2	Mis.	.....	1	24	....
	33	2	.....	Mis.	1	37	....
1855	34	1	Mis.	.....	1	73	....
	34	1	.....	Mis.	1	113	....
1856	34	3	Mis.	.....	1	54	....
	34	3	.....	Mis.	1	55	....
1857	35	1	Mis.	.....	4	272	....
	35	1	.....	Mis.	3	135	....
1858	35	2	Mis.	.....	1	49	....
	35	2	.....	Mis.	1	57	....
1859	36	1	.....	Mis.	7	90	....
1860	36	2	Mis.	.....	1	21	....
1861	37	2	.....	Mis.	1	77	....
1862	37	3	.....	Mis.	2	25	....
1863	38	1	.....	Mis.	4	83	....
1864	38	2	.....	Mis.	2	55	....
1865	39	1	.....	Ex..	14	102	....
1866	39	2	.....	Mis.	1	83	....
1867	40	2	Mis.	.....	1	86	....
1868	40	3	.....	Ex..	12	83	....
1869	41	3	.....	Ex..	12	153	....
1870	42	1	.....	Ex..	2	20	....
1871	42	2	Mis.	.....	2	149	....
1872	42	3	.....	Mis.	3	107	....
1873	43	1	Mis.	.....	2	130	....
1874	43	2	.....	Mis.	2	56	....
1875	44	1	Mis.	.....	1	115	....
1876	44	2	Mis.	.....	3	46	....
1877	45	2	Mis.	.....	1	35	....
1878	45	3	Mis.	.....	3	59	....
1879	46	2	Mis.	.....	2	54	....
1880	46	3	Mis.	.....	1	31	....
1881	47	1	Mis.	.....	2	109	....
1882	47	2	.....	Mis.	5	26	....
1883	48	1	.....	Mis.	34	69	....
1884	48	2	Mis.	.....	2	33	*1, 2
1885	49	1	.....	Mis.	25, 26	15	1, 2
1886	49	2	.....	Mis.	11, 12	170	1, 2
1887	50	1	.....	Mis.	17, 18	600	1, 2
1888	50	2	.....	Mis.	14, 15	142	1, 2
1889	51	1	.....	Mis.	20, 21	224	1, 2
1890	51	2	.....	Mis.	10, 11	129	1, 2
1891	52	1	.....	Mis.	43, 44	334	1, 2

*Part two of this and subsequent reports is the annual report of the National Museum.

ANNUAL REPORTS OF THE BUREAU OF ETHNOLOGY.

Volume.	Year.	Congress.	Session.	House.	Volume.	Number.
1	1879–'80 *	....	....	.....	....	....
2	1880–'81	47	1	Mis .	20	61
3	1881–'82	48	2	Mis .	8	32
4	1882–'83	48	2	Mis .	17	42
5	1883–'84	49	2	Mis .	10	167
6	1884–'85	50	1	Mis .	14	571
7	1885–'86	52	1	Mis .	31	107
8	1886–'87	52	1	Mis .	41	295

* This volume is not included in the Congressional set.

CONTRIBUTIONS TO NORTH AMERICAN ETHNOLOGY.

Volume.	Part.	Congress.	Session.	House.	Volume.	Number.	Part.
1 *	....	....	....	.....	....	.....	....
2	1	51	1	Mis .	44	272	1
	2	51	1	Mis .	45	272	2
3 *	....	....	....	.....	....	.....	....
4 *	....	....	....	.....	....	.....	....
5	....	47	1	Mis .	26	66	....
6	....	51	1	Mis .	46	273	....

* This volume is not included in the Congressional set.

ANNUAL REPORTS OF THE COMMISSIONER OF FISH AND FISHERIES.

Part.	Year.	Congress.	Session.	Senate.	House.	Volume.	Number.
1	1871–'72	42	2	Mis		1	61
2	1872–'73	42	3	Mis		2	74
3	1873–'74 1874–'75	43	2	Mis		2	108
4	1875–'76	44	1	Mis		2	107
5	1877	45	2	Mis		3	49
6	1878	45	3	Mis		2	31
7	1879	46	2	Mis		3	59
8	1880	46	3	Mis		3	29
9	1881	47	1	Mis		3	110
10	1882	47	2	Mis		4	46
11	1883	48	1		Mis	32	67
12	1884	48	1		Mis	33	68
13	1885	48	2	Mis		6	70
14	1886	49	2	Mis		4	90
15	1887	50	2		Mis	8	133
16	1888	51	1		Mis	47	274

BULLETINS OF THE U. S. FISH COMMISSION.

Volume.	Year.	Congress.	Session.	Senate.	House.	Volume.	Number.
1	1881	47	1	Mis		4	131
2	1882	47	2		Mis	11	40
3	1883	48	1		Mis	1	11
4	1884	48	2		Mis	1	6
5	1885	49	1		Mis	1	34
6	1886	49	2		Mis	9	165
7	1887	50	2		Mis	10	136
8	1888	51	1		Mis	18	261
9	1889	51	2		Mis	13	131
10	1890	52	1		Mis	5	341

THE FISHERIES AND FISHERY INDUSTRIES OF THE UNITED STATES.

Section.	Congress.	Session.	Senate.	Volume.	Number.	Part.
1 text	47	1	Mis..	6	124	1
1 plate	47	1	Mis..	6	124	2
2	47	1	Mis..	7	124	3
3	47	1	Mis..	8	124	4
4	47	1	Mis..	8	124	4
5 text, v. 1	47	1	Mis..	9	124	5
5 text, v. 2	47	1	Mis..	10	124	6
5 plates	47	1	Mis..	11	124	7

ANNUAL REPORTS OF THE CIVIL SERVICE COMMISSION.

Year.	Congress.	Session.	Senate.	House.	Volume.	Number.	Part.
1884	48	1	.....	Ex..	26	105	....
1885	48	2	.....	Ex..	28	207	....
1886	49	1	.....	Ex..	31	140	....
1887	50	1	Ex..	.....	12	223	....
1888	50	2	Ex..	.....	4	145	....
1889	51	1	.....	Ex..	18	1	8
1890	51	2	.....	Ex..	21	1	8
1891	52	1	.....	Ex..	22	1	8

ANNUAL REPORTS OF THE COMMISSIONERS OF THE DISTRICT OF COLUMBIA.

Year.	Congress.	Session.	House.	Volume.	Number.	Part.
1874	43	2	Ex..	8	1	6
1875	44	1	Ex..	5	1	7
1876	44	2	Ex..	5	1	6
1877	45	2	Ex..	10	1	6
1878	45	3	Ex..	11	1	6
1879	46	2	Ex..	12	1	6
1880	46	3	Ex..	12	1	6
1881	47	1	Ex..	13	1	6
1882	47	2	Ex..	14	1	6
1883	48	1	Ex..	13	1	6
1884	48	2	Ex..	15	1	6
1885	49	1	Ex..	16	1	6
1886	49	2	Ex..	12	1	6
1887	50	1	Ex..	15	1	6
1888	50	2	Ex..	16	1	6
1889	51	1	Ex..	16	1	6
1890	51	2	Ex..	18	1	7
1891	52	1	Ex..	21	1	7

OFFICIAL REGISTER OF THE UNITED STATES (BLUE BOOK).

[The Register pior to that for 1883 is not found in the Congressional set.]

Year.	Congress.	Session.	House.	Volumes.	Number.	Parts.
1883	48	1	Mis.	2, 3	4	1, 2
1885	49	1	Mis.	5, 6	27	1, 2
1887	50	1	Mis.	3, 4	87	1, 2
1889	51	1	Mis.	5, 6	41	1, 2
1891	52	1	Mis.	27, 28	50	1, 2

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 15.

STATEMENT OF EXPENDITURES OF THE MILITARY ESTABLISHMENT.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING

A report of the expenditures of the appropriations for the contingent expenses of the military establishment.

DECEMBER 7, 1892.—Referred to the Committee on Expenditures in the War Department and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: In compliance with section 229 of the Revised Statutes of the United States, I have the honor to transmit herewith a statement of the expenditure of moneys appropriated for the contingent expenses of the military establishment during the fiscal year ended June 30, 1892, which was submitted to this Department on the 10th ultimo by the Second Auditor of the Treasury.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

Statement of expenditure of moneys appropriated for the contingent expenses of the military establishment during the fiscal year ending June 30, 1892.

CONTINGENCIES OF THE ARMY.

Date.	By whom paid.	To whom paid.	On what account.	Amount.
1891.				
July 6	Treasury Department.	John Cotter, lieutenant Fifteenth Infantry.	Subsistence furnished school teacher to Indian prisoners at Mount Vernon Barracks, Ala., May 1891.	$10.25
22	....do.....	R. C. Croxton, lieutenant Fifth Infantry.	Same, June, 1891.....	9.98
Aug. 1	....do.....	John Cotter, lieutenant Fifteenth Infantry.	Same, January, 1891.....	9.89
18	....do.....	.....do.....	Same, March and April, 1891.....	19.94
Nov. 17	....do.....	B. F. Stevens, U. S. dispatch agent, London, England.	Expense on case sent to State Department (for Secretary of War) from legation, St. Petersburg, Apr. 22, 1891.	10.60
1892.				
June 16	....do.....	Bureau of Engraving and Printing.	For engraving plate and printing certificates of proficiency for officers.	618.50
1891.				
July 2	Wm. S. Yeatman, disbursing clerk, War Department.	M. W. Galt, Bro. & Co ..	Furnishing rings and engraving medals of honor.	17.50
6	....do.....	H. D. Borup, captain of ordnance, military attaché.	Contingent expenses, office of military attaché, Paris, France, Apr. 1 to June 30, 1891.	131.40
9	....do.....	J. C. Post, major Engineer Corps, military attaché.	Contingent expenses, office of military attaché, London, England, June, 1891.	40.56
11	....do.....	T. A. Bingham, captain Engineer Corps, military attaché.	Contingent expenses, office of military attaché, Berlin, Germany, five weeks ending June 1, 1891.	50.50
11	....do.....	James J. Chapman	Book for War Department library.	6.50
16	....do.....	T. A. Bingham, captain Engineer Corps, military attaché.	Contingent expenses, office of military attaché, Berlin, Germany, four weeks ending June 29, 1891.	40.40
17	....do.....	O. L. Hein, captain First Cavalry, military attaché.	Contingent expenses, office of military attaché, Vienna, Austria, June, 1891.	40.00
20	....do.....	H. T. Allen, lieutenant Second Cavalry, military attaché.	Contingent expenses, office of military attaché, St. Petersburg, Russia, October 28, 1890, to April 28, 1891.	147.50
20	....do.....	Wm. Ballantyne & Sons.	Books for War Department library	92.80
23	....do.....	Francis J. Meeker	Book for War Department library.	2.00
25	....do.....	Wm. C. Winslow.....	.....do	5.00
28	....do.....	W. H. Morrison.	.....do	8.00
Aug. 1	....do.....	J. J. Chapman.....	50 copies Tidball's Manual of Heavy Artillery.	118.00
5	....do.....	MacMillan & Co	Book for War Department library.	3.05
Sept. 1	....do.....	W. H. Lowdermilk & Co	Books for judge-advocates at Department headquarters.	1,967.30
19	....do.....	Edward Thompson Co..	.....do	90.00
25	....do.....	Wm. Ballantyne & Sons	Periodicals for military posts.....	11.29
28	....do.....	The Washington Post Co.	Advertising for proposals.....	7.00
30	....do.....	The Philadelphia Inquirer.	.....do	2.80
30	....do.....	The Tribune Association.	.....do	3.90
Oct. 5	....do.....	The Inter-Ocean.....	.....do	2.38
15	....do.....	Wm. Ballantyne & Sons.	Book for War Department library.	3.50
Nov. 27	....do.....	The Boston Journal.....	Advertising for proposals	2.17
1892.				
Feb. 1	....do.....	G. P. Putnam's Sons	Books for Post libraries.....	1,600.08
Mar. 31	....do.....	W. H. Lowdermilk & Co.	.....do	13.00
May 21	....do.....	.....do	.....do	5.20
				5,090.99

Statement of expenditure of moneys appropriated for the contingent expenses of the military establishment, etc.—Continued.

CONTINGENCIES OF THE ARMY—Continued.

Date.	By whom paid.	To whom paid.	On what account.	Amount.
1891.				
July 14	Wm. S. Yeatman.	New York Herald	One year's subscription for military information division, War Department.	$10.00
14	....do	The Tribune Association.	Subscription, July 8, 1891, to June 30, 1892, for military information division, War Department.	9.83
14	....do	C. E. Hudson	Book for War Department library	6.00
18	....do	John S. Rich	....do	8.00
Aug. 1	....do	S. D. Miller	Traveling expenses from Washington, D. C., to Nanepashenet, Mass., and return.	59.73
1	....do	The New York Times	One year's subscription, for military information division, War Department.	8.00
4	....do	M. W. Galt, Bro. & Co	Engraving medal of honor	7.00
14	....do	W. H. Lowdermilk & Co.	Books for War Department library.	31.75
15	....do	Wm. Ballantyne & Sons.	....do	5.42
17	....do	J. J. Chapman	....do	1.40
18	....do	N. Hershler	4,006 soldiers hand books	1,281.92
21	....do	W. S. Yeatman	Traveling expenses, etc., from Washington, D. C., to Philadelphia and return.	58.00
22	....do	J. J. Chapman	Book for War Department library	3.25
Sept. 1	....do	T. A. Bingham, captain Engineer Corps, military attaché.	Contingent expenses, office of military attaché, Berlin, Germany, four weeks ending July 27, 1891.	40.40
1	....do	O. L. Hein, captain First Cavalry, military attaché.	Contingent expenses, office of military attaché, Vienna, Austria, July, 1891.	40.00
1	....do	J. C. Post, major Engineer Corps, military attaché,	Contingent expenses, office of military attaché, London, England, July, 1891.	33.15
7	....do	M. W. Galt, Bro. & Co	Engraving medals of honor, etc	14.00
12	....do	Chas. C. Potts	Book for War Department library	6.50
14	....do	Wm. Ballantyne & Sons.	Book for military post	.70
15	....do	G. P. Putnam's Sons	Book for War Department library	5.00
16	....do	The Southern Historical Society.	Books for War Department library	9.00
16	....do	Little, Brown & Co	Book for War Department library	3.50
17	....do	Wm. Ballantyne & Sons.	Books for War Department library	259.32
23	....do	W. H. Morrison	Books for judge-advocates	2.00
23	....do	Samuel Hodgkins	Traveling expenses, Washington, D.C., to Mackinac National Park, Michigan, and return.	54.60
24	....do	S. D. Miller	Traveling expenses, Washington, D. C., to New York and return.	31.40
24	....do	W. H. Lowdermilk & Co.	Book for judge-advocate, department of Arizona.	12.00
25	....do	Wm. Ballantyne & Sons.	Books for division of military information and military posts.	69.90
25	....do	David Fitz Gerald	Traveling expenses, Washington, D. C., to West Point, N. Y., and return.	24.25
28	....do	B. W. Hanna	Expenses while accompanying Secretary Proctor on tour of inspection of military posts in the Northwest.	30.75
29	....do	The National Tribune Co.	Books for War Department library.	3.00
30	....do	M. W. Galt, Bro. & Co	Engraving medals of honor	21.00
Oct. 1	....do	Henry L. Hertz	Holding inquest on the body of John Ames, September 5, 1891.	6.00
13	....do	W. H. Lowdermilk & Co.	Books for War Department library.	18.75
13	....do	J. J. Chapman	....do	2.00
15	....do	Wm. Ballantyne & Sons.	....do	4.73
17	....do	Henry T. Allen, lieutenant Second Cavalry, military attaché.	Contingent expenses, office of military attaché, St. Petersburg, Russia, July and September, 1891.	27.40
17	....do	C. E. Hudson	Book for War Department library	.75
17	....do	MacMillan & Co	....do	2.81
19	....do	U. S. Naval Institute	9,880 reprints of half tones (520 copies each of 19 plates), to illustrate No. 10, General Information Series, office of Naval Intelligence.	45.44

Statement of expenditure of moneys appropriated for the contingent expenses of the military establishment, etc.—Continued.

CONTINGENCIES OF THE ARMY—Continued.

Date.	By whom paid.	To whom paid.	On what account.	Amount.
1891.				
Oct. 21	Wm. S. Yeatman.	U. S. Naval Institute	100 copies, whole No. 59, proceedings of U. S. Naval Institute.	$75.00
23	do	Redfield Proctor	Traveling expenses, etc., while on tour of inspection from Washington, D. C., to various military posts and return, August 1 to 10, 1891.	559.88
24	do	Abm. C. B. Havens	Searching title to lots at Barnegat Park, N. J.	203.88
24	do	Henry C. Kelsey, secretary of state.	Exemplified copies of papers connected with above.	15.00
24	do	Thomas Parry	One die and cutter and 100 silver-plated badges for Sioux Indians.	64.00
Nov. 6	do	David Fitzgerald	Traveling expenses from Washington, D. C., to New York and return.	37.15
11	do	W. H. Lowdermilk & Co.	Book for War Department library.	2.50
16	do	J. C. Post, major, Engineer Corps, military attaché.	Books purchased for the War Department.	17.86
19	do	M. W. Galt, Bro., & Co	Engraving medals of honor and furnishing rings for same.	5.25
24	do	Samuel Hodgkins	39 photographic views for War Department library.	10.00
30	do	M. E. Mann	Book for War Department library.	6.00
30	do	Wm. Ballantyne & Sons.	Book for military post, Fort Riley, Kans.	.80
Dec. 1	do	Chas. L. Condit	Book for War Department library.	10.00
5	do	Wm. Ballantyne & Sons.	Books for War Department library	43.48
17	do	W. H. Lowdermilk & Co.	Books for use of judge-advocates	337.00
23	do	J. H. Wilson	Altering backs and replating 100 medals for Indian scouts.	35.00
28	do	S. Beniczky	30 copies of photographs of handwriting for use in a court-martial.	25.00
31	do	Wm. Ballantyne & Sons.	Books for Presidioi military post, California.	2.10
1892.				
Jan. 7	do	G. W. & C. B. Cotton & Co.	Map of Chile and map of Central America.	13.00
11	do	J. J. Chapman	Books for War Department library	22.20
13	do	A. Hoen & Co	Photolithographing and printing 500 copies of map of Mexico for military posts,	120.00
21	do	O. L. Hein, captain First Cavalry, military attaché.	Contingent expenses office of military attachés Vienna, Austria, October, 1891.	25.64
26	do	Geo. W. Knox	Freight on one box of paper	.48
27	do	George Barrie	Book for War Department library.	20.00
Feb. 3	do	M. W. Galt, Bro. & Co	Engraving medals of honor and furnishing rings.	17.50
8	do	V. G. Fischer	Book for division of military information.	2.00
10	do	McIntosh Battery and Optical Co.	Astronomical set, slides, etc., for use at military posts.	60.00
13	do	Department of State	Revised Statutes for military posts.	135.87
17	do	C. E. Hudson	Book for War Department library.	.75
23	do	do	do	.75
23	do	Southern Historical Society.	do	3.00
23	do	J. J. Chapman	Books for War Department library	8.75
24	do	L. A. Grant	Traveling expenses from Washington, D. C., to New York, Boston, Watertown and return.	42.65
25	do	Brown & Reed	Book for War Department library.	5.25
26	do	S. D. Miller	Traveling expenses, etc., from Washington, D. C., to New York and return.	22.00
27	do	Adams Express Co	Freight on one lot books	.45
Mar. 7	do	L. A. Grant	Traveling expenses, etc., Washington, D. C., to Fort Monroe, Va., and return.	18.50
8	do	Wm. Ballantyne & Sons.	Books for military post, Fort Riley, Kans.	1.90
11	do	do	Books for War Department library	16.26
11	do	W. H. Lowdermilk & Co.	do	17.10
11	do	G. P. Putnam's Sons	do	5.00

Statement of expenditure of moneys appropriated for the contingent expenses of the military establishment, etc.—Continued.

CONTINGENCIES OF THE ARMY—Continued.

Date.	By whom paid.	To whom paid.	On what account.	Amount.
1892.				
Mar. 11	Wm. S. Yeatman.	U. S. Naval Institute	Books for military posts	$75.00
12	do	C. Madsen, U. S. deputy marshal, Oklahoma and Kansas.	Serving legal papers, court-martial, Fort Reno, October, 1891, and transportation, etc., from Topeka, Kans., to Fort Reno.	39.87
12	do	George Barrie	Book for War Department library	10.00
12	do	D. M. Oliver	do	6.50
14	do	MacMillan & Co	do	2.82
14	do	McIntosh Battery and Optical Co.	Instruments furnished military posts.	532.50
14	do	A. S. Aloe & Co	Stereopticon views for military post, Fort Leavenworth, Kans.	100.80
16	do	J. J. Chapman	Books for War Department library	18.10
16	do	do	do	.50
21	do	Western Union Telegraph Co.	Telegrams, division of military information.	3.92
22	do	B. W. Hanna	Traveling expenses, etc., Washington, D. C., to New York and return.	32.00
23	do	Western Union Telegraph Co.	Telegrams, division of military information.	1.08
26	do	J. J. Chapman	Books for military posts	857.25
28	do	Little, Brown & Co	Books for War Department library	32.75
30	do	J. J. Chapman	Books for military posts	188.80
31	do	Wm. Ballantyne & Sons	do	2.10
31	do	do	do	.25
31	do	Mary R. Wilcox	do	150.00
31	do	M. W. Galt, Bro. & Co	Engraving medals of honor	14.00
31	do	W. H. Lowdermilk & Co	Books for judge-advocate	2.50
31	do	Wm. Ballantine & Sons	Books for War Department library	10.24
31	do	Macmillan & Co	do	2.81
Apr. 5	do	A. S. Aloe & Co	Books, etc., for military post, Fort Niobrara, Nebr.	98.80
7	do	Wm. Ballantine & Sons	Books for military post	2.30
7	do	Western Union Telegraph Co.	Telegrams for division of military information.	2.33
7	do	Philip Allen, clerk of court.	Copy of proceedings, case of Ohio *vs.* Joseph McLaughten, general service recruit.	1.25
7	do	J. C. Post, major Engineer Corps, military attaché.	Books furnished for division of military information.	24.61
8	do	W. R. Hodges	Books for War Department library	4.00
8	do	C. E. Hudson	do	75
8	do	W. H. Lowdermilk & Co	do	24.25
13	do	Wm. Ballantyne & Sons	do	24.95
14	do	Chas. Hedges & Co	do	2.00
15	do	A. C. McClurg & Co	Book for division of military information.	2.45
19	do	J. J. Chapman	Books for War Department library	16.00
21	do	John C. Yorston & Co	do	6.00
23	do	A. S. Aloe & Co	Stereopticon views, military post, Fort Riley, Kans.	99.60
May 4	do	M. W. Galt, Bro. & Co	Engraving, etc., medals of honor	17.50
6	do	U. S. Naval Institute	Books for military posts	75.00
10	do	B. W. Hanna	Traveling expenses, etc., Washington, D. C., to Elkins, W. Va., and return.	16.30
10	do	Wm. Ballantyne & Sons	Books for War Department library	30.29
11	do	J. J. Chapman	Books for military posts	637.20
11	do	do	Books for War Department library	7.75
11	do	Henry T. Allen, lieutenant Second Cavalry, military attaché.	Russian rifle, gun rest, etc	26.54
18	do	Adams Express Co	Freight on books	.90
21	do	Chas. L. Webster & Co	Books for military posts	336.60
21	do	B. W. Hanna	Traveling expenses, etc., Washington, D. C., to New York and return.	39.85
24	do	Sir W. G. Armstrong, Mitchell & Co. (limited).	Insurance on cordite sent from Hamburg to New York.	72.89
26	do	Edward Thompson Co	Books for judge-advocate's office, headquarters Division of the Atlantic.	6.00
June 3	do	W. H. Lowdermilk & Co	Books for judge-advocate's office, Department of the Platte, Omaha, Nebr.	5.00

Statement of expenditure of moneys appropriated for the contingent expenses of the military establishment, etc.—Continued.

CONTINGENCIES OF THE ARMY—Continued.

Date.	By whom paid.	To whom paid.	On what account.	Amount.
1892.				
June 6	Wm. S Yeatman.	W. M. Galt, Bro. & Co	Engraving, etc., medals of honor	$12.25
15	....do	J. W. Nolan	Reward for arrest, etc., of John P. Benson, private Company C, Eighteenth Infantry, and Marion Otto, private Company H, Eighteenth Infantry, for stealing $3,300 from Paymaster C. C. Sniffen, at Fort Clark, Tex.	500.00
10	....do	Geo. W. Knox express	Freight on books	.50
10	....do	Chas. Scribner's Sons	100 copies Small Arms Firing	95.00
13	....do	W. H. Orcutt	Traveling expenses, etc., Washington, D. C., to Richmond and various other points in Virginia and return.	41.65
13	....do	Edward Thompson Co	Books for judge-advocate's offices, U. S. Army.	612.00
14	....do	H. D. Borup, captain ordnance, military attaché.	Expenses incurred in obtaining information for War Department.	345.00
18	....do	J. J. Chapman	Books for War Department library	18.63
20	....do	B. W. Hanna	Cab hire	2.00
29	....do	Francis B. Loomis	Expenses incurred in obtaining information for War Department.	400.00
30	....do	W. H. Lowdermilk & Co.	Books for War Department library	18.20
30	....do	W. H. Orcutt	Traveling expenses, etc., Washington, D. C., to Augusta, Ga., and various other places and return.	140.96
30	....do	Edward Thompson Co	Books for judge-advocates at sundry military posts.	48.00
30	....do	M. W. Galt, Bro. & Co	Engraving, etc., medals of honor	29.25
30	....do	Wm. Ballantyne & Sons.	Books for military posts	4.72
30	....do	W. H. Lowdermilk & Co.	Books for War Department library	9.50
30	....do	Wm. Ballantyne & Sons.	.....do	68.50
30	....do	J. J. Chapman	.....do	2.40
30	....do	C. E. Hudson	.....do	.75
30	....do	W. H. Lowdermilk & Co.	Books for judge-advocates	12.00
1891.				
Nov. 20	Treasury Department.	S. M. Mansfield, lieutenant-colonel Engineers Corps.	Sale of public property Oct. 27, 1891	13.75
Dec. 19	....do	R. C. Croxton, lieutenant Fifth Infantry.	Subsistence furnished school teacher to Indian prisoners at Mount Vernon Barracks, Ala., October, 1891.	10.11
1892.				
Feb. 1	....do	.....do	Same, November, 1891	9.94
10	....do	.....do	Same, December, 1891	9.42
Apr. 27	....do	.....do	Subsistence furnished school teacher to Indian prisoners at Mount Vernon Barracks, Ala., January, 1892.	9.82
May 6	....do	.....do	Same, February, 1892	8.58
June 6	....do	.....do	Same, March, 1892	9.25
27	....do	.....do	Same, April, 1892	9.11
Mar. 16	....do	J. Van R. Hoff, surgeon, U. S. Army.	Subsistence stores used in instructing men in hospitals in cookery, Apr. 11 to June 30, 1892.	50.00
16	....do	Valery Havard, surgeon, U. S. Army.	Same, Mar. 12 to June 30, 1892	50.00
31	....do	M. J. Grealish, captain Ordnance Department (Rock Island Arsenal).	Manufacture of medals of honor, quarter ending Dec. 31, 1891, $350.99; and Mar. 31, 1892, $151.51.	502.50
	Total			10,976.29
				16,067.28

RECAPITULATION

Contingencies of the Army, 1891	$5,090.99
Contingencies of the Army, 1892	10,976.29
Total	16,067.28

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 16.

BARNEGAT INLET, NEW JERSEY.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Barnegat Inlet, New Jersey.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. C. W. Raymond, Corps of Engineers, dated August 13, 1892, of a preliminary examination of Barnegat Inlet, entrance and harbor, New Jersey, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated August 13, 1892, by Maj. Charles W. Raymond, Corps of Engineers, of the results of a preliminary examination of Barnegat Inlet, entrance and harbor, New Jersey, made to comply with requirements of the river and harbor act approved July 13, 1892.

It is the opinion of Maj. Raymond, concurred in by the division engineer and by this office, that the locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF BARNEGAT INLET, ENTRANCE AND HARBOR, NEW JERSEY.

UNITED STATES ENGINEER OFFICE,
Philadelphia, Pa., August 13, 1892.

GENERAL: In compliance with instructions contained in Department letter dated July 14, 1892, I have the honor to submit the following report upon a preliminary examination of Barnegat Inlet, entrance and harbor, New Jersey, in accordance with a provision of the river and harbor act approved July 13, 1892.

A large portion of the coast of New Jersey is separated from the sea by long low beaches of shifting sand. Through these beaches, at considerable intervals, there are inlets connecting the interior bays with the sea.

The improvement of some of these inlets in the interest of commerce has before received careful consideration. In 1887 an elaborate report upon the proposed improvement of Absecon Inlet was submitted by a board of engineers, and is published in the Annual Report of the Chief of Engineers for 1887, page 815. In 1890, a report was submitted upon the proposed improvement of Little Egg Harbor Inlet, and is published in the Annual Report of the Chief of Engineers for 1891, page 1095.

These inlets can only be improved by the construction of jetties transferring the gorge out to deep water beyond the point where sand will accumulate, and narrowing the entrance so as to assist in maintaining an increased depth by the scour of the tidal currents. The construction of such jetties upon a sandy coast is costly and uncertain. Owing to the instability of the beaches they require expensive works of shore protection. As shown by experience, the harbors thus formed are never good harbors of refuge, as they always lack accessibility. Finally, the channel depths through such entrances can not be permanently maintained without sluicing reservoirs or frequent dredging, unless the ebb currents are assisted by the outflow of a relatively large quantity of back water. The improvement of an inlet on a sandy coast is one of the most difficult problems in harbor engineering, and its cost and uncertainty is so great that it should only be attempted when necessary to improve the approach to some great port of commerce.

Barnegat Inlet is situated about 50 miles south of Sandy Hook, and forms the entrance to the largest bay inclosed between the beaches and the New Jersey coast. The inlet and the adjacent waters are used only by coasters of the smaller class, and the local commerce is unimportant.

The objects of the proposed improvement are the formation of a harbor of refuge and an entrance to the interior harbor of sufficient depth to be navigable at all stages of the tide. Such a harbor as it might be possible to construct without enormous expense for construction and maintenance would be useless for vessels engaged in the foreign trade. It would be only of service to the coastwise trade, which now employs vessels drawing 14 and 16 feet, with a constant tendency towards increase of draft. The depth of water in the channel and anchorages should therefore be not less than 20 feet.

The currents through the inlet maintain a low-water cross-section of about 26,600 square feet, the low-water width being about 3,360 feet and the low-water mean depth nearly 8 feet. To maintain a channel depth of 20 feet, the entrance at the outer ends of the jetties would therefore have to be less than 1,000 feet in width. Such a harbor would doubtless increase the number of casualties instead of diminishing them, as

has proved to be the case at the mouth of the Tyne, where the entrance between the jetties is much wider.

* * * * * * *

The possible benefits to be derived from the prosposed improvement are not considered sufficient to justify the large expenditure required, especially in view of the uncertainty of obtaining permanent and satisfactory results. In my opinion, Barnegat Inlet is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

C. W. RAYMOND,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Henry L. Abbot, Corps of Engineers, Division Engineer, Northeast Division.)

[First indorsement.]

NORTHEAST DIVISION, ENGINEER OFFICE,
New York, August 20, 1892.

Respectfully forwarded to the Chief of Engineers, U. S. Army.

I concur with Maj. Raymond in his opinion, for the reasons herein stated, that this harbor is not worthy of improvement by the General Government.

HENRY L. ABBOT,
Colonel of Engineers, Bvt. Brig. Gen., U. S. A.,
Engineer Northeast Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 17.

BAGADUCE RIVER, MAINE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of South Fork of Bagaduce River, Maine.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. Peter C. Hains, Corps of Engineers, dated August 17, 1892, of a preliminary examination of South Fork of Bagaduce River, Maine, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, dated August 17, 1892, by Lieut. Col. Peter C. Hains, Corps of Engineers, of the results of a preliminary examination of South Fork of Bagaduce River, Maine, made to comply with requirements of the river and harbor act approved July 13, 1892.

Lieut. Col. Hains is of opinion that the locality is not worthy of improvement by the General Government and I concur in his views.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF SOUTH FORK OF BAGADUCE RIVER, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., August 17, 1892.

GENERAL: In compliance with requirements of Department letter dated July 14, 1892, I have made a preliminary examination of the South Fork of the Bagaduce River, Maine, and have the honor to submit the following report:

The South Fork of the Bagaduce is navigable for vessels of a good draft, up as far as Johnsons Narrows. The depth in the Narrows, however, is less than 4 feet at mean low tide, and the current, both on ebb and flood, flows with such velocity that it is not navigable at all for sailing vessels except for about half an hour on each slack of the flood tide, in other words, about one-half an hour of daylight. The tide here rises and falls about 9 feet, so that vessels drawing from 10 to 11 feet can pass through at the high-water stage. At no other time, however, can they safely do so, because of the swiftness of the current and the dangerous projecting ledges on either hand.

From Johnsons Narrows to the toll bridge, which is the head of navigation, is a distance of about 1½ miles. The channel over this distance is somewhat crooked, but the depth of water is greater than in the Narrows, and navigation over this portion is less difficult.

The improvements desired are the widening of the Narrows, and the removal of some of the ledges above, so that sailing vessels may safely navigate this portion of the river.

To make this stretch of the river easily navigable for sailing vessels of from 10 to 12 feet draft is an undertaking of some magnitude, involving considerable expense. I have not the data for making an accurate estimate of the cost of such improvement, but from personal examination I am satisfied it would be great. Some amelioration, however, could be effected at less cost.

* * * * * * *

A steam tug to tow vessels up and down would be of vastly more service than the removal of rocks, and doubtless a tug would be used for the purpose if the number of vessels trading there was sufficient to warrant the employment of one. I am informed that about one schooner a week passes through Johnsons Narrows.

There is a brickkiln of small capacity about half way between the Narrows and the bridge, and a lumber mill where barrel staves are manufactured near it. Most of the latter are shipped to Boston and New York. There are no other manufacturing establishments on this part of the river in existence, or in prospect. Some wood is brought down from above the bridge, but this is carried in lighters. The country adjacent to the stream is fertile and fairly well cultivated.

It does not seem to me that the amount of commerce now on the river would be materially increased by the improvements referred to, and the amount at present would not, in my opinion, justify the Government in undertaking the work.

Moreover, the existing project for the improvement of the Bagaduce River contemplates the expenditure of $1,875 for the removal of rocks in Johnsons Narrows after the work in Northern Bay, contemplated by the project, is completed.

In view of the above I am of the opinion that the South Fork of the Bagaduce River is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

PETER C. HAINS,
Lieutenant-Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 18.

OLD RIVER, CALIFORNIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, a report of the examination of Old River, California.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. W. H. Heuer, Corps of Engineers, dated August 23, 1892, of a preliminary examination of Old River Branch of San Joaquin River, California, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report of August 23, 1892, by Maj. W H. Heuer, Corps of Engineers, of results of preliminary examination of Old River Branch of San Joaquin River, California, made to comply with provisions of the river and harbor act approved July 13, 1892.

Maj. Heuer states that the river is worthy of improvement to the

extent of dredging a low-water channel 6 feet deep through the bar at Naglees Ferry.

No instrumental survey of the river is required in order to estimate the cost of the work.

The views of Maj. Heuer are concurred in by the Division Engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF OLD RIVER BRANCH OF SAN JOAQUIN RIVER, CALIFORNIA.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., August 23, 1892.

GENERAL: In compliance with act of Congress approved July 13, 1892, and your instructions of July 14, 1892, requiring a preliminary examination of Old River Branch of San Joaquin River, California, to be made, I have to submit the following report as the result of said examination, which was made by me in person on August 18 and 19, 1892. What is known as Old River Branch of the San Joaquin River is a depression carrying water in the low, flat tule basin of the San Joaquin Valley.

Old River leaves the San Joaquin River proper at a point situated about 10 miles above the city of Stockton, thence flows in a westerly direction for about 3 miles (this 3 miles of river is sometimes called Old River and sometimes Middle River, being common to both); thence it flows in a southwesterly direction for another 3 or 4 miles, thence in a direction nearly northwest to its mouth for a distance of nearly 40 miles, where it joins the San Joaquin River at a point some 25 miles, more or less, above the mouth of the latter. In other words the Old River may be generally described as a stream a little over 50 miles in length, leaving the San Joaquin River at a point some 10 miles above Stockton and rejoining it at a point some 30 miles below, embracing between Old River and San Joaquin River an area of territory containing, approximately, 150 square miles. Situated between Old River and the San Joaquin River is another similar stream called Middle River, and each of these three streams throws out numerous branches or sloughs in various directions. The territory above referred to is known as Roberts, Union, Bacon, and Mandeville islands. Most of this territory was originally a tule bed or swamp and was overflowed during freshets in the river. Very much of it has been reclaimed by throwing up levees, and among the portions so reclaimed are some of the finest cultivated lands in California.

Calling that point where Old River leaves the San Joaquin River, above Stockton its head, and the lower end where it rejoins the river its mouth, a description of the character of the stream will be attempted.

At its mouth Old River is about a quarter of a mile in width and has ample depth for steamboat navigation. Beyond the banks are low, flat, unreclaimed tule lands, extending for miles in all directions. In ascending Old River a reasonably straight stretch some 3 miles in length

is visible; thereafter the stream is so extremely crooked that straight reaches of even a half mile in length are rare. The steamboat, with her barge, is hardly out of one bend before she is again into another. The river is the most crooked navigable stream that I have ever seen. The river gradually gets narrower, but maintains ample navigable depth. At a point some 7 miles above its mouth is a slough connecting Old and Middle rivers; some 10 miles above this slough is another connecting slough.

The width of the river here has decreased to about 200 feet. Just above this point, at or near the northwest corner of Union Island, is what is known as Union Island Landing, a place where boats can land and take on freight. In the 17 miles of river passed over, three shanties, believed to be occupied by Chinamen, were visible. In the next 20 miles or so of river above Union Island Landing the river varies from 300 to 100 feet in width, and is so crooked that a boat in towing a barge has to slow down to enable her to make the sharp bends. At this point, known as Naglees Ferry, the first shoal water is encountered. At low water the depth of water on this bar is 28 inches; the tidal influence adds 14 to 20 inches of increased depth. The bar itself is not more than 600 feet in length, and the river not over 100 feet in width. The bar is probably an alluvial deposit, and a pole can be pushed into the top of the bar from 6 inches to a foot vertically; below that plane the material becomes harder, and may be clay or, possibly, hardpan. Both banks of the river at this locality and above are leveed, and the land on both sides is cultivated. This obstruction or bar can be removed by dredging. * * *

After crossing this bar deep water is again found up to the head of navigation, which is about a mile above the ferry, and is known as Naglee's warehouse. In this mile of river there are three landings from which freight is shipped. From this point up to the head of Old River, some 12 or 14 miles, the river has never been navigable; in fact, is dry in places, and is so crooked and narrow that it could not be made navigable without an expenditure of money incommensurate with the benefits to be derived from such improvement.

During the present season there has been transported and is yet to be shipped a total of about 80,000 sacks of wheat and barley, say a little less than 5,000 tons, all shipped from the three landings immediately above the bar or obstruction just referred to. The bar is only an obstruction to loaded barges. Grain can be banked anywhere along either levee in this mile of distance, and the warehouse could be removed to a point on the river below the obstruction for less money than it would cost to dredge the bar, but the cost to the producer for the increased haul for this distance would be about 30 cents per ton, or, say, $1,500 for one season's crop.

Steamboats transport the grain to market at the rate of $1 per ton. They will not transport it for any less, even though the bar were removed, and the effect of the removal of the bar to the steamboats would be that they would load the barges deeper than at present, and at the close of the season's work net a few hundred dollars more profit than at present. As all the water transportation on this river is handled by two boats, the owners of these boats are the only ones that would be immediately benefited in case the bar should be removed.

As the river is a navigable stream for nearly 40 miles of its length, has but one small obstruction above referred to, and carries a tonnage of nearly 5,000 tons per year, it is believed that it is worthy of im-

provement to the extent above indicated. * * * No instrumental survey of the river is required.

A survey of the bar can be made in a few hours when Congress shall have appropriated money for the removal of the obstruction.

Respectfully submitted.

W. H. HEUER,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., August 24, 1892.

Respectfully forwarded.

For reasons herein stated, Old River Branch of the San Joaquin River is to be regarded as worthy of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 19.

STANISLAUS RIVER, CALIFORNIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Stanislaus River, California.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. W. H. Heuer, Corps of Engineers, dated October 26, 1892, of a preliminary examination of Stanislaus River, California, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated October 26, 1892, by Maj. W. H. Heuer, Corps of Engineers, upon preliminary examination of Stanislaus River, California, made in accordance with provisions of the river and harbor act approved July 13, 1892.

Maj. Heuer does not consider the Stanislaus River at present worthy of improvement, for the reason that the improvement at its best could be of limited local advantage only, is not a public necessity, would not reduce rates of freight or insurance, nor add to the productiveness of that section of the country.

For the reasons stated, the division engineer, Col. G. H. Mendell,

Corps of Engineers, does not regard the improvement as worthy of being made by the General Government at the present time, and this office concurs in this opinion.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF STANISLAUS RIVER, CALIFORNIA.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., October 26, 1892.

GENERAL: In accordance with the act of Congress of July 13, 1892, and your instructions of July 14, 1892, the following is submitted as the result of a preliminary examination of the Stanislaus River, California, made by me on October 19, 1892:

The Stanislaus River is one of the tributaries of the San Joaquin River. It rises in the mountains of Alpine and Tuolumne counties, flows in a southwesterly direction, forms part of the boundary between Tuolumne and Calaveras counties, and is also part of the boundary between Stanislaus and San Joaquin counties. Its total length is about 100 miles, of which the lower 15 to 25 miles, during high-water stages, has been and is yet navigable. The upper part of its flow is through a country rich in mines and agriculture; the navigable portion of the river flows through a very flat agricultural country.

From 1879 to 1884 the river was gauged under the direction of Mr. W. Ham. Hall, then State engineer of California, who gives the minimum flow of water at 21 cubic feet per second, the maximum at about 11,000, and the mean annual flow for four years at about 1,950 cubic feet per second. During the late summer and early autumn months the flow of the river becomes insignificant; in the winter and spring it frequently becomes a torrent. As there was not water enough in portions of the river to float a skiff between its mouth and the head of navigation (a distance of about 9 miles in a straight line, but 15 to 20 miles via the river), the examination had to be made in a wagon, reaching the river, wherever practicable, on foot, through the brush and undergrowth. In this manner it was examined at some seven places, averaging about 2 miles apart. The banks of the stream in its navigable portion are from 80 to 200 feet apart, average 20 to 25 feet in height, are invariably of sand and loam covered with underbrush and willows, and a short distance back from the banks are handsome groves of oak trees. The bed of the stream is of sand, there being no gravel visible anywhere.

The width of the water surface at the time of the examination varied from 30 to 75 feet and the depth varied from less than 1 foot to as much as 4 feet. The river is very crooked, the bends being extremely short, sharp, and frequent. The river rises and falls very rapidly. Its highest stage was estimated as fully 20 feet above its low-water level, and in a few places small, short levees had been built to prevent overflow of valuable adjacent lands. In times during low-water stage, which lasts from four to six months during the year, there is not enough water to float a skiff. In its high-water periods there is water enough for steamboat navigation, but the duration of high-water sea-

son is so variable, the rise and fall of the river is so rapid, and freights are so uncertain as to seriously interfere with profitable navigation. There has been no steamboat up this river for two years, and for a considerably longer period there has been no boat more than 10 miles above the mouth of the river. The only freight transported by boat from the river banks has been cordwood, for which a freight rate of $2.50 is charged.

At Ripon the Southern Pacific Railroad crosses the river on a bridge without a draw. There is also a wagon bridge without a draw alongside the railroad bridge. Those bridges mark the upper limits of navigation. Before the railroad was built in 1870 freight had to be transported from this section of the country to Stockton, 20 miles, by teams or by the river route. The rates of freight by either route were $5 per ton on wheat. The rates at present, by rail, are $1.60 per ton on wheat to Port Costa (the shipping port for wheat near San Francisco), or less than one-third of the old rate to Stockton. This rate, coupled with the uncertainties of navigation and the limited amount of freight shipped from this section, makes it commercially unprofitable for steamboats to compete. There are no towns on the river below Ripon, and the latter has but one store and the usual surroundings of a small village or railway station.

The obstacles to navigation are a want of water and here and there a few snags and sand bars. During high or even medium stages of the river neither the snags nor sand bars are serious obstacles to navigation. During six months in the year boats can not get up the San Joaquin River to the mouth of the Stanislaus River, and when they can reach the latter place it would seem to me, from the appearance of both rivers, that they could, if they desired, get up to Ripon if necessary. There would be no commercial advantages (commensurate with the expense) in removing snags and sand bars from the river. The improvement at its best could be of limited local advantage only, is not a public necessity, would not materially improve navigation nor reduce rates of freight or insurance nor add to the productiveness of the section, and would benefit such a very small community that I do not consider the Stanislaus River at present worthy of improvement. No further survey of the river is required.

Respectfully submitted.

W. H. HEUER,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., November 7, 1892.

Respectfully forwarded to the Chief of Engineers.

For reasons herein stated Stanislaus River is regarded as not now worthy of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 20.

SAN JOAQUIN RIVER, CALIFORNIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of San Joaquin River, California.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. W. H. Heuer, Corps of Engineers, dated September 3, 1892, of a preliminary examination of the San Joaquin River, California, from Hills Ferry to Firebaughs Ferry, including closing of sloughs on the river above Stockton, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated September 3, 1892, by Maj. W. H. Heuer, Corps of Engineers, of the results of a preliminary examination of San Joaquin River, California, from Hills Ferry to Firebaughs Ferry, including closing of sloughs on the river above Stockton, made to comply with requirements of the river and harbor act approved July 13, 1892.

It is the opinion of Maj. Heuer, concurred in by the Division Engineer and by this office, that this portion of the river is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF SAN JOAQUIN RIVER, CALIFORNIA, FROM HILLS FERRY TO FIREBAUGHS FERRY, INCLUDING CLOSING OF SLOUGHS ON THE RIVER ABOVE STOCKTON.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., September 3, 1892.

GENERAL: In accordance with instructions from your office, dated July 14, 1892, I made a preliminary examination of the upper part of the San Joaquin River, California, between Firebaugh and Hills Ferry, including closing of the sloughs on the river above Stockton, and have the honor to submit the following report thereon:

I arrived at Firebaugh on the evening of August 26, 1892, and the California Navigation and Improvement Company had arranged, through the courtesy of its manager, Mr. H. J. Corcoran, to send a skiff there by rail from Stockton. This skift did not arrive, and could not have been used in case of arrival, as there was not water enough on some of the shoals to float it. The examination was therefore made on horseback and in a wagon, by viewing the stream from its banks at nearly every mile of its length, and the depths were determined by fording the stream in numerous places.

The portion of the river between Firebaugh and Hills Ferry, measured in a straight line, is about 45 miles in length, but, owing to its numerous crooks and turns and influenced perhaps by the length of time which is occupied in making the trip on a steamboat, the steamboatmen call the length of the river between these two stations 125 miles. Firebaugh is a small village, on the left bank of the river, containing a dozen or more frame buildings, among them a store, hotel, stable, railroad station, and the usual accessories of a California village. It is also a station on the Southern Pacific Railroad. The principal industry of the place is sheep-shearing. A wagon bridge with a draw span also crosses the river at this locality. Steamboats have navigated this river, dur ing freshets, up as far as Whites Bridge, which is about 16 mile above Firebaugh, but of late years steamboats with their barges have rarely gone above Firebaugh, so that the latter place may be considered as the present head of high-water navigation of the upper San Joaquin River.

At Firebaugh the low-water surface of the river is stated by the former State engineer of California to be 137 feet above the plane of low tide in Suisun Bay. During freshets the extreme rise of the river has been as much as 15 feet; ordinarily it is about 10 to 12 feet. The width of the river between its high-water banks, which are of adobe, at Firebaugh is estimated at 600 feet; the width of the water surface at its present low-water stage is about 45 feet. The banks vary in height from 8 to 12 feet above the low-water surface of the river. Wherever the bed of the river was exposed between its high-water banks, nothing but sand and water was visible; there was an entire absence of gravel, and, as the banks are not heavily timbered, the river between Firebaugh and Hills Ferry is conspicuous among Californian rivers for the remarkable absence of snags. From Firebaugh to Hills Ferry, an estimated distance of about 90 miles, the fall is 87 feet, and the flow of the river is generally northwest. The high-water banks vary from 8 to 12 feet in height above the low-water surface; their distance apart varies in width from 100 to 600 feet, and the low-water surface varies in width from 20 to 150 feet. The least depth observed, at a place known as Emorys Crossing, was 4 inches. The river there was only 20 to 25 feet wide. There are no villages, only four or five

ranches, and only two warehouses on the banks of the river between Firebaugh and Hills Ferry. For several miles in width on both banks of the stream there is very little grain cultivated; the country is a vast cattle range, and, strange to say, nearly or fully 90 per cent of all this land on both sides of the river is owned by one firm, Messrs. Miller & Lux, of San Francisco.

Two railroads are now running reasonably parallel, one on each side of the river, and at a distance varying from 1 to 16 miles. Both are owned by the Southern Pacific Company. Most of the country along the lines of the railroad is cultivated and is essentially grain-raising, the products being wheat and barley, though some fruit and vegetables are raised. The rates of freight from this section of the country by rail and by river (when the latter is navigable) are practically the same, and both are excessive. The producer is therefore governed in his choice of transportation routes by the cost to him of the wagon transportation to his point of shipment. Owing to the small number of landings on the river, and the very limited amount of grain raised near the river banks, the wagon haul is generally shorter to the railroad station than to a warehouse or landing; and as the railroad can be depended upon as a daily transportation route, whenever cars can be obtained, while the river route is only open during a few months in the year, as long as the transportation rates remain the same, the railroad route has certain advantages over the water route. On the other hand, every thing else being equal, a shipper, when practicable, would prefer to transport by river, for the reason that his product, if in large quantities, would go down in barges, and the barge would land alongside any vessel in San Francisco Bay, and would thereby save drayage and warehouse charges.

Nearly all the crops raised in the San Joaquin Valley in the locality named between Firebaugh and Hills Ferry are dependent on artificial irrigation. The water for irrigation is taken out of the San Joaquin River a short distance, 7 to 16 miles, above Firebaugh. One of these irrigation canals is over 70 miles long, 60 feet wide at the water surface, 40 feet wide at the bottom, and the water channel is about 6 feet deep, with a fall of about 1 foot per mile. The other canals may be a little smaller. The water is obtained in these canals by means of dams placed across the San Joaquin River above the head of navigation, and far more water flows through each of these canals and is distributed over the land at low-water season than remains in the river below the dams. Without these or other irrigating canals, the cultivation of the land, the raising of crops, etc., would be impossible. Under such circumstances the river could be of no value whatever as a transportation route. On the north and east sides of this section of the river two creeks, the Bear and Mariposa, enter it. The latter has numerous tributaries and is quite a formidable stream. Its cross section and volume of water found where I forded it, about 2 miles above its mouth, was greater than any which was observed in the river itself above Hills Ferry.

There are no sloughs of any consequence on the east side of this section of the river, and such as there are have been closed by levees built across their entrances or exits. On the south and west sides of this section of the river, for a distance varying from 3 to 10 miles, the land falls away from the banks, that is, is lower than the river itself. The result is a large number of sloughs on this side, known as Posey, Lone Willow, Middle, Temple, Santa Rita, and Salt Slough. All of these take water from the river, most of them connect with each other inland

and finally combine into a large slough, called Salt Slough, which reenters the river at a point about 9 miles above Hills Ferry. This latter slough has a larger cross sectional area for several miles above its mouth than any section of the river observed above Hills Ferry, and in addition thereto has a warehouse some 3 miles above its mouth, so that sometimes during high-water seasons, when the river above Salt Slough is unnavigable in consequence of shoal water, steamboats can get into Salt Slough and take freight from the Salt Slough warehouse. Several of these sloughs, especially the Posey and Temple, have been closed by means of floodgates and weirs, so that the flow of water into them could be regulated and used for irrigation purposes. During high water the flow of water into them was ample; at low water it was insufficient, and to remedy this temporary wing dams, extending four-fifths of the way across the river, were constructed by owners of adjacent property, with a view to deflecting more water into these sloughs.

At Santa Rita, or Dry Sand Slough, which is about 15 miles long and which leaves the river some 18 miles below Firebaugh and reenters it some 15 miles further down, a dam of sand, whose top was 4 feet above the surface of the river water, was being constructed, extending fully four-fifths of the way across the river, and the other fifth was being filled in with bags of sand, with a view to deflect river water into the slough for irrigating purposes and for maintenance of live stock. In fact it is plain to see that the use of the water for irrigating is of far more value to the owners of the land now than it possibly could be for purposes of navigation. The two interests—navigation and irrigation—in this section of the country conflict with each other. At low-water stages of the river, which obtain during six months of the year and sometimes for a longer period, there is not water enough in the river, unless slack-water navigation by means of locks and dams should be secured, to float a skiff. The banks being alluvial, it would be expensive to build proper locks and dams, and more expensive to maintain them during the high-water periods when the whole adjacent country for miles in width becomes inundated.

During low-water periods this section of the river is nearly dry, and is, in my judgment, not of sufficient commercial importance, with the extremely limited number of settlers at present occupying this valley, to warrant the expenditure for making and maintaining slack-water navigation over this portion of the river.

It has been suggested that by building levees across each slough, thus confining the water to the river proper, that the current itself would scour out the bars obstructing navigation in the river, but it must be borne in mind that this entire section of country containing the sloughs referred to is lower than the banks of the river, and that if the entrances to the sloughs were closed, the banks themselves, being of sand and alluvium, during high-water periods when overflowed would break and open up new entrances and exits for the water in the sloughs, thus requiring constant annual expenditures on the river, besides destroying the sloughs for irrigation purposes.

In periods of high water the bed of the river is far too small to carry off the flood waters of the Upper San Joaquin, and the volume and depths of the river over this portion of it are ample for navigation purposes, but during such periods there is not freight enough available to keep steamboats constantly employed. As an illustration, during May and June of 1892 the river was high and boats might have reached Firebaugh any time during these months; only one boat attempted it

and took in one trip all the freight offered, consisting of one cargo of wool.

Hills Ferry was formerly a prosperous village. Recently, when the railroad on the west side of the river was completed, a new station, known as Newman, some 3 miles west of Hills Ferry, was established, and the village of Hills Ferry is, in consequence, nearly deserted. Firebaugh is now the only village left on the upper river above Hills Ferry. It has railroad communication with the outer world. The rates for freight on wool by boat from Firebaugh to San Francisco are reported to be $1 per sack, weighing 300 to 400 pounds, or say $6 per ton, while by rail the tariff is said to be $10.20 per ton. Wool is the only product reported to me as transported to or from this section of the country on which the freight rate by rail or by river was materially different.

It is believed to be perfectly practicable to close the entrances and exits of all the sloughs in this section of the river. * * *

In my opinion the closure of the sloughs will not reduce freight rates, will not permit of low-water navigation, nor materially prolong the season of high-water navigation.

A detailed survey of this stretch of the river would determine with some degree of accuracy the cost of the closure of the sloughs, and might determine some valuable physical data concerning it. * * *

With the present small number of settlers on the Upper San Joaquin River and the insignificant commerce which this portion of the stream carries, I do not deem this portion of the river worthy of improvement.

Respectfully submitted.

W. H. HEUER,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G, H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., September 7, 1892.

Respectfully forwarded.

It appears from this report that the San Joaquin River above Hills Ferry, and as high as Firebaugh, is navigable during the freshet period, which includes two or three months during the spring, and sometimes a short season during the winter months. During the remainder of the year there is not water enough in the river to maintain the ordinary kind of navigation, which is due, in great part, to diversion for irrigation. The sloughs are used as canals for this purpose.

Improvement by locks and dams may be proved to be practicable, although costly. At present, owing to the want of development of the country, a system of slack-water navigation is hardly to be justified.

For these reasons the improvement of the San Joaquin River, between Hills Ferry and Firebaugh, is considered as at present not worthy of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers,
Division Engineer.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 21.

EMORY RIVER, TENNESSEE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Emory River, Tennessee, from its mouth to Harriman.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. Henry M. Robert, Corps of Engineers, dated August 22, 1892, of a preliminary examination of Emory River, Tennessee, from its mouth to Harriman, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respecttfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated August 22, 1892, by Lieut. Col. Henry M. Robert, Corps of Engineers, of the results of preliminary examination of Emory River, Tennessee, from its mouth to Harriman, made under his direction to comply with provisions of river and harbor act approved July 13, 1892.

Lieut. Col. Robert states that in his opinion Emory River is worthy of improvement by the General Government, provided it can be done at a reasonable cost, which can only be determined by a survey made during low water, for which he submits an estimate of $600.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF EMORY RIVER, TENNESSEE, FROM ITS MOUTH TO HARRIMAN.

ENGINEER OFFICE, U. S. ARMY,
Nashville, Tenn., August 22, 1892.

GENERAL: I have the honor to forward herewith a report of a preliminary examination of the "Emory River, Tennessee, from its mouth to Harriman," made by First Lieut. John Biddle, Corps of Engineers, in compliance with the river and harbor act of July 13, 1892.

The Emory River enters the Clinch about 4 miles above the point where the latter river enters the Tennessee. Kingston, on the Clinch River, 1 mile above its mouth, has regular steamboat connection with Loudon above and Chattanooga below, both on the Tennessee River. Harriman is on the Emory, about 8 miles from its mouth and within 11½ miles of Kingston, by water; the town extends, with its additions, from Emory Gap down the river for about 3½ miles, and it is said to contain from 4,000 to 5,000 inhabitants and has excellent railroad connections. There are large quantities of iron and coal in its vicinity that would be affected by the improvement of the Emory. The advantages to be derived are fully stated in the letter hereto appended of Mr. James Hayward, assistant manager, to the general manager of the East Tennessee Land Company.

Lieut. Biddle recommends a survey of the river from the gap, or Harriman, to its mouth.

The existing commerce of the Emory River is now small, but the prospective commerce will be largely increased by the opening up of the iron, coal, and lumber trade incident to an improved river channel.

For the reasons given above I am of opinion that the "Emory River, from its mouth to Harriman," is "worthy of improvement by the General Government," provided it can be done at a reasonable cost, which can only be determined by a survey made during low water, which I recommend to be made at a cost not to exceed $600, including the cost of submitting plan and estimate for its improvement.

Very respectfully, your obedient servant,

HENRY M. ROBERT,
Lieut. Col. of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

REPORT OF LIEUTENANT JOHN BIDDLE, CORPS OF ENGINEERS.

AUGUST 6, 1892.

COLONEL: I have the honor to submit the following report of the preliminary examination of the "Emory River, Tennessee, from its mouth to Harriman."

The examination was made from July 23 to 25. I visited the city of Harriman, conversed with persons interested in its commerce, and went over the river in a row boat. I had the assistance of the chief engineer of the East Tennessee Land Company, Mr. J. P. Suverkrop, who has been at the city since it was first built and is well acquainted with the river. I also discussed the subject with Capt. W. P. Rose, manager of the Emory River Packet Company.

A map* of the river and the country adjacent and a statement of the advantages to Harriman of an improvement in the Emory River, both prepared in the office of the East Tennessee Land Company, are submitted.

On the day of examination the river was about 2 feet above low water, so that the shoals could not be seen as well as if the water had been lower. The low-water depths

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*Not printed.

as given are therefore only approximate, deduced from statements made by well-informed persons and from the depths actually measured. It was impossible at that stage of water even to approximate to the fall.

The Emory River rises in Cumberland County, Tenn., flows through Morgan and Roane counties, crossing Waldens Ridge at Emory Gap, and empties, 11½ miles below, into the Clinch River, 3½ miles above Kingston. The Clinch joins the Tennessee River about 1 mile below Kingston. The city of Harriman lies on the left bank of the Emory, extending with its additions for about 3½ miles below the gap.

The highest point to which boats have ascended is said to be the gap. The head of navigation is usually considered as at Webster, formerly Barton Landing, 4 miles farther down, or 7½ miles above the mouth. The area drained by the Emory River is not large and it is, consequently, subject to sudden rises and falls, and becomes very low in dry weather. The principal tributary is the Little Emory, about 4 miles above its mouth, a small creek that brings but little water at low stages.

The Emory River varies in width from 75 to 100 feet above the Little Emory; it then widens out, and at the mouth is over 200 feet wide. The banks are 15 to 25 feet high, well wooded, and permanent. Bluffs occur from time to time, so that there is plenty of stone for dams. There are many overhanging trees and a few snags.

The point which it is desired to make the head of navigation is below Mees Ferry, 2½ or 3 miles above Webster. From this point for one-half mile downstream the water forms a pool 100 feet wide with a depth of 3 to 10 feet. Opposite the first branch, called Bullard Branch, is a shoal 600 feet long, with a probable depth of 0.5 to 1 foot, and numerous bowlders. Below the shoal the water deepens, and for 1 mile is good water, with occasional bars and reefs. Then occurs for 1,500 feet a succession of short shoals and pools, with a depth of 0.5 to 1 foot at low water, a narrow channel, and numerous bowlders. At the next branch, called Robinson, is a shoal 300 feet long, depth of 6 inches to 1 foot, with numerous bowlders, and one-fourth mile lower down another similar shoal for 100 feet. Below the latter shoal is Webster. From this point to the mouth, 7½ miles, the water is generally good, except at two places. The first is three-fourths of a mile below Webster, where a short shoal of 50 feet will give a probable depth of 12 to 18 inches, and the second is below the mouth of the Little Emory, where there are some shallow bars and reefs. Over the rest of the river there may have to be removed occasional bowlders, but the water seemed good.

The current, except at the shoals, is very sluggish. The backwater of the Clinch makes itself felt at least as far as Webster.

An examination of the river was made in 1876 by Mr. Wm. M. Gordon, assistant engineer, and published in report of Maj. Walter McFarland, Corps of Engineers. The cost of improvement was estimated at $12,000, but it is stated that no public interest demanded it. (See Report of Chief of Engineers, 1876, page 745, *et seq.*) Since that date Harriman has been built. Started in 1890 by the East Tennessee Land Company, it claims now 4,000 to 5,000 people, and has various industries. It has railroad connection with the Cincinnati Southern and the East Tennessee, Virginia and Georgia railroads, and has a belt line called the Harriman Coal and Iron Railroad, extending along the river bank in front of the city. This latter road is in part built out to the Brushy Mountain coal fields, passing close to Webster. These coal fields are said to be very extensive and to give an excellent quality of coal.

At present coal is brought by a trolley from a mine directly across the river from the city. A wagon bridge across the river is contracted for.

A transportation line, called Emory River Packet Company, has two boats that run daily from Kingston to Loudon, Tenn., and also at times to Harriman. It was intended to run regularly to Harriman as long as the river allowed. That it is not done is due, as told me by the manager, to the fact that they can not go above Webster, and the belt line is not yet extended to that point, and to the sudden falls in water incident to the Emory River, making it dangerous to remain in the river all night. The completion of the belt line and the improvement of the river would, Capt. Rose states, cause the boats to run regularly.

The advantages to Harriman of good navigation are given in appended statement. They lie generally in the reduction of rates both for land and water transportation and in affording a better outlet for the products of the Upper Tennessee Valley. More especially would this be the case when the projected furnace is built. Among the best and most abundant ores on the Tennessee River are those from Eureka and adjacent mines, 3 miles above the mouth of the Clinch River, and thus 15 miles from Harriman. If this ore can be brought by barges and worked with Brushy Mountain coal, successful furnaces might be established.

The river likewise would afford an outlet for coal, iron, and other products. Once connected with the Tennessee River, navigation becomes continuous to the Ohio and Mississippi rivers.

Kingston, the county seat of Roane County, would profit by being brought within

11 miles by water transportation of railroads, while now connection is made with Loudon, 25 miles distant. The principal business of Kingston is lumber and the trade at present is very dull.

If navigation can be obtained at a reasonable cost, I am of the opinion that improvement should be undertaken. I am in doubt whether absolute low-water navigation can be secured by channel work, even up to Webster, and whether farther than that point profitable navigation can be sure at 2 or 3 feet on the gauge. An examination at low water would have to determine these points. Even if the improvement were limited to removing bowlders and cutting trees it would be of advantage. It seems probable that a single lock and dam at Kingston would back up water sufficient to make the Emory navigable. This would, however, be, of course, very expensive, but would be a satisfactory solution.

There is a bar in the Clinch River about one-half mile below the Emory that will have to be removed for low-water navigation. The project of the improvement of the Clinch contemplates, however, a low-water depth of 2 feet, and work is being carried forward on that basis.

I therefore recommend that a survey be made of the Emory River from the Gap to its mouth, on which to base project for improvement. This survey will take about two weeks' work and will cost about $600. It should be made in the autumn when the river is more likely to be low.

Very respectfully, your obedient servant,

JOHN BIDDLE,
First Lieutenant of Engineers.

Lieut. Col. HENRY M. ROBERT,
Corps of Engineers.

LETTER OF MR. JAMES HAYWARD.

[East Tennessee Land Company; office of W. H. Russell, general manager; J. D. Roberts, assistant general manager.]

HARRIMAN, TENN., *July 27, 1892.*

In my report to you upon the probable effect of making such improvements in the Emory River as to render that river navigable to Harriman, most, if not all of the year, the limited time at my disposal must be my excuse for any inaccuracies or omissions.

Assuming that such river improvements have been made, I shall first consider the effects on north-bound traffic. The city of Harriman would probably look to the southeast for all its supplies in the way of cereals, hay, and dressed meats, and for most of its vegetables. Our flour mill would draw from the Sweetwater Valley from 75,000 to 100,000 bushels of wheat annually. The local consumption is about 20,000 bales of hay, and the corn, oats, potatoes and other supplies requisite for meeting the demands of a city of 5,000 inhabitants would collectively amount to a very large tonnage. Further, the natural outlet for the hard-wood lumber business of Kingston would then be by water to Harriman, thence by rail. This trade, on the present basis of business, would require millions of feet of hard wood, and under the stimulus of such advantages, this trade would be doubtless increased considerably. Again transportation would be opened up for a bed of very fine brownstone near Kingston, where for 6 or 8 miles the stratum is exposed, varying from 50 to 100 feet in thickness. This brownstone is rich in color, of even grain, and easily quarried and worked; and has the peculiar merit of growing harder under exposure, a rare quality in this class of minerals, but one which would materially assist in introducing it into general use. As you can see, the possible tonnage of this material is enormous.

But perhaps the greatest advantage to accrue to the city of Harriman from these improvements would be in connection with the iron and coal interests. When our blast furnace is completed, it will require daily for every day in the year, at least 300 tons of ore, or more than 100,000 tons in a year, which should naturally come from our mines now in operation to this place by water. There would also be opened to us cheap transportation for tanbark, Tennessee marble, and a variety of materials needed by our various factories.

Turning now to the other side of the case and considering the advantages of shipping out of this territory by means of water, we discover that a cheap outlet would thus be afforded generally for all our manufactured products, and for all our raw material; and, naturally, because we are in the heart of the territory toward which to-day a large part of the Union now turns to supply itself with coal, coke, iron ore, and the various kinds of lumber and tanbark, it is not too much to say that a rate of freight could then be had from our coal fields to Chattanooga that would be profitable to the navigation company, and yet so low as to be

below the cost of handling the same by rail. If this position is correct, it could hardly be two years before cities like Chattanooga would get their coal supplies entirely by water. Furthermore, the cities along the Mississippi River, which now use for making gas the bituminous coals found in our range of mountains, would find us lively competitors with Pennsylvania and West Virginia for their trade; and as we would have an all-water connection between our mines and those cities. it might naturally be expected that we would gain at least our share of the business, The fact that our coal makes a superior quality of coke, the cost of which material is doubled to most places in the Mississippi Valley by reason of the high freights necessarily paid, should enable us to sell large quantities of this material by reason of the relatively cheaper freight-rate which water transportation would enable us to get.

Under this rate we would at once find customers in Rockwood, Dayton, Chattanooga, South Pittsburg, and other such places, so that it is upon a careful estimate by our mining expert that we may safely expect to ship annually 100,000 tons of coal, 25,000 tons of coke, 75,000 tons of iron ore, and 10,000 tons of iron product. The last item would include a fair proportion of the articles manufactured by the Hoe and Tool Works, the Gibson Agricultural Works, the Duthie Machine and Foundry Company, and the Lookout Rolling Mills; and the same entry to outside markets would be afforded our furniture factory, our ice company, and all our other manufacturing interests.

In the above I have attempted to set forth in a general way the benefits of the proposed improvements that may be expected by the citizens of Harriman. It is proper to say in this connection that the town of Kingston has a merchandise business of at least $125,000 annually, and as Harriman is now the nearest railway station to that town, this business would naturally go to Kingston by water from here, and it would so go to-day could water connection be relied upon for most, if not all, of the year. Upon a fair estimate the business of Kingston above referred to would amount to at least 1,250,000 pounds of freight each year.

All of which is respectfully submitted.

JAMES HAYWARD,
Assistant Manager,

W. H. RUSSELL, Esq.,
General Manager.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 22.

GREEN BAY, WISCONSIN.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Green Bay, Wisconsin.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. James F. Gregory, Corps of Engineers, dated August 20, 1892, of a preliminary examination of Green Bay, Wisconsin, from light-house to first bridge on Fox River, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated August 29, 1892, by Maj. James F. Gregory, Corps of Engineers, of the results of preliminary examination of Green Bay, Wisconsin, from light-house to first bridge on Fox River, made to comply with provisions of river and harbor act approved July 13, 1892.

Maj. Gregory states that excepting that part of the dredged cut which is included in the general project for improving harbor at Green Bay, Wisconsin, this locality is not, in his opinion, worthy of improvement by the General Government.

His views are concurred in by the Division Engineer, and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF GREEN BAY, WISCONSIN, FROM LIGHT-HOUSE TO FIRST BRIDGE ON FOX RIVER.

UNITED STATES ENGINEER OFFICE,
Milwaukee, Wis., August 29, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination made by me August 25, 1892, in pursuance of instructions contained in letter of Chief of Engineers, dated July 14, 1892, and to comply with requirement of item contained in section 6, river and harbor act of July 13, 1892, as follows: "Green Bay, from light-house to first bridge on Fox River."

The dredged channel from the light-houses on Grassy Island southward to the mouth of Fox River is now 200 feet wide with a least depth of water of 14 feet. The present approved project includes the deepening of this cut to secure a 16-foot channel.

From the mouth of Fox River to the first bridge on Fox River, at Green Bay City, there is deep water and the channel does not need improving. Two lines of soundings over this reach of river show a depth of channel of from 23 feet to 42.5 feet.

Excepting, therefore, that part of the dredged cut which is included in the general project for improving harbor at Green Bay, Wis., I have to report that this locality is not, in my opinion, worthy of improvement by the General Government.

Very respectfully, your obedient servant,

JAMES F. GREGORY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., August 30, 1892.

Respectfully forwarded to the Office of the Chief of Engineers.

I concur in the opinion herein expressed.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 23.

NAVARRO RIVER, CALIFORNIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the mouth of Navarro River, California.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. W. H. Heuer, Corps of Engineers, dated November 4, 1892, of a preliminary examination of mouth of Navarro River, California, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated November 4, 1892, by Maj. W. H. Heuer, Corps of Engineers, upon preliminary examination of mouth of Navarro River, California, made in accordance with requirements of the river and harbor act approved July 13, 1892.

Maj. Heuer reports that the conclusion, based on the facts and observations of a merely preliminary examination, is inevitable that a harbor at the mouth of Navarro River is not a public necessity and in his judgment not worthy of public improvement.

Col. G. H. Mendell, Corps of Engineers, the division engineer, states

that for the reasons given in the accompanying report Navarro River is regarded as not now worthy of improvement by the General Government, and I concur in this opinion.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF MOUTH OF NAVARRO RIVER, CALIFORNIA.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., November 4, 1892.

GENERAL: In conformity with the act of Congress of July 13, 1892, requiring a preliminary examination of the mouth of the Navarro River, California, I went to the locality on September 6, 1892, and have to submit the following report as the result of my examination:

The Navarro River empties into the Pacific Ocean in Mendocino County, Cal., in latitude 39° 12′ north. On both sides of its mouth are rocky cliffs, 200 to 400 feet in height, and these cliffs extend for several miles inland, where they are generally covered with redwood and pine timber, and for many miles up and down the coast, broken here and there with little indentations in the coast line, and each of these is complimented by being called a harbor or landing.

Mendocino County, which has a sea-coast line about 100 miles in length, is full of these little so-called harbors, which many of the masters of coasting vessels call "dog holes". Commencing near the northern border the following are the names of some of the landings: Rockport, Westport, Fort Bragg, Noyo, Caspar, Mendocino or Big River, Little River, Albion, Whitesboro, Navarro, Cuffeys Cove, Greenwood, Point Arena, Signal Port, and Guallala. They are all alike in this respect, that they are extremely small; nearly all afford some protection during the prevailing northwest winds of summer, but are all or nearly all dangerous to anchor in on account of rocks, or enter during winter storms when the wind and sea are southwest, south or southeast. At each landing mentioned there are either wharves, chutes, or wire cables, from which vessels are loaded.

On both sides of, just inside of, and outside of the mouth of the Navarro River, especially just outside of it, are great numbers of visible and some sunken rocks and ridges. Prof. Davidson, of the U. S. Coast and Geodetic Survey, in his Pacific Coast Pilot states that the—

> Three-fathom line is close along the edge of the visible rocks and is marked on the outside by a thin fringe of kelp, which has 6 to 8 fathoms close to the outer edge. There are outside of this kelp line some sunken rocks having depths of 11 and 15 feet of water over them.

At its mouth during the low-water season, which lasts six months or more in the year, the Navarro River at its narrowest place is from 30 to 40 feet in width, with a maximum depth of 8 feet. In winter, however, during a freshet the width of the mouth has been as much as 600 feet. On the north side of its mouth a crib work of timber, 400 or 500 feet long, whose crest is about 9 feet above the level of mean low tide, has been constructed with a view to deflect floating timber, drift, etc., away from the wharf during freshets. This crib forms one side of the

river's mouth. On the south side of the mouth is a peninsula of sand 600 feet or more in length, of a width varying from 100 to 600 feet, and from 2 to 4 feet in height above mean low-water level. This is covered with a mass of driftwood, in some places 10 feet in height, piled up by the action of the sea.

In winter freshets, which sometimes last for two or three weeks, this drift, as well as the sand on which it lodges, is washed out, making a river mouth, as has been stated, perhaps 600 feet in width. As soon as the freshet subsides the peninsula reforms until the mouth of the river again very nearly closes. Just inside the mouth of the river, and on each side of it, are several pinnacle rocks standing up 10 feet or more in height above the surface of the water. As both bluffs on the sides of the river are of solid rock, and these pinnacles show up in the river's mouth, and as scores of these rocks are visible about a quarter of a mile outside of the mouth, the inference is fair that the whole bed of the river at this locality is a mass of rock covered in places with a variable depth of sand, through which the river has worn its way to the ocean. One hundred yards, more or less, outside of the mouth of the river is a sand beach, on which the surf rolls, and on which at low tide the depth does not exceed 2 feet.

Inside the mouth of the river, for half a mile upstream, the low-water banks of the river are 500 to 600 feet apart. In this waterway there is a channel from 60 to 100 feet in width and from 5 to 10 feet in depth, and it is within this part of the mouth of the river that the mill-owners at Navarro River desire to have the Government make a harbor. At a point half a mile inside the mouth there are two bridges across the river, one of these is a fine iron truss bridge, neither has any draw span. On the north side of the mouth of the river is a pile wharf, the deck of which is fully 20 feet above high-water surface, whose length is nearly 1,000 feet, with a width varying from 20 to 60 feet, and at the outer end of which there is a depth varying from 17 to 20 feet. Vessels make fast to heavy moorings placed outside the wharf and by this means approach sufficiently near, so that by means of derricks and chutes they can discharge and load. The mean rise and fall of the tide is between 4 and 5 feet. Two steam vessels (schooners) run regularly to the mouth of the Navarro River and several sail schooners also go there for cargoes.

The sawmill owned by the Navarro Mill Company, situate a little more than a mile up the river, is probably the finest sawmill on the coast, costing about $120,000, and has a capacity for sawing about 125,000 feet of lumber per day. The shipment of this lumber from the mill to market, together with the supplies for the mill and employés, is the full extent of the commerce carried on at this locality. The tidal influence is felt up the river for about 4 miles above its mouth. The width of the river varies from 100 to 600 feet in this distance, and from 1 to 10 feet in depth. The volume of discharge in summer is insignificant; in winter, 6 miles above its mouth, it has been known to rise fully 30 feet during a freshet, and the river then becomes a torrent and is useful principally as a means of floating logs for the mill. The tidal basin of the river being only about 4 miles in length and averaging, say 200 feet in width, has an area a little less than 100 acres; this would give a calculated tidal flow of about 390 cubic feet per second, which agrees well with a rough measurement made by me on September 6, when the observed tidal flow was 360 cubic feet per second.

The fresh-water discharge of the river at its summer stage is insignificant as compared with above. As the entrance to a harbor for even the small vessels plying here should be at the very least 300 feet in

width, it is probable that the volume of tidal discharge would not maintain a channel of this width more than 14 inches in average depth. The two steamers which ply here, the *Newsboy* and *Navarro*, are vessels of over 200 tons, having a 9 or 10 foot depth of hold. Neither could get into the river in summer, both might get in under the most favorable conditions occasionally in winter, provided two strong stone jetties were built out to deep water in the ocean, but the effect of these two jetties, if constructed seaward sufficiently far to be effective, would probably be to collect sand on their outer sides to such an extent as to utterly prevent the approach of any vessel to the present outer wharf.

The available space within the mouth of the river for anchorage, assuming an average width of 75 feet, would be a little less than 3 acres. This is too narrow for vessels to turn around in. A larger basin could be made by dredging, but would not be self-maintaining on account of the limited volume of water in circulation.

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The commerce to be benefited by any harbor located at or near the mouth of the Navarro River would be principally that of the Navarro Mill Company in their shipment of lumber. Their maximum cutting capacity, working the entire year, would be about 28,000,000 lumber feet, the freight on which to San Francisco is $3 per thousand, or an aggregate of $102,500 per year. It might serve to enable them to get quicker and more certain dispatch for their product during winter only than at present. It is not claimed that there would be any material reduction in the rates of freight or insurance. In case a railroad were constructed from Navarro River up the Anderson Valley, in which the Navarro and its tributaries head (a distance of about 30 miles), it would enable the farmers in that section of the country to ship whatever fruits and stock they might raise. The valley itself covers probably 30 square miles of area, has a reported population of 1,700 people, and the assessed valuation is $900,000. As yet very little more than is required for local wants is raised in the valley. The difficulties and cost of transportation to market are excessive. The wagon haul to Cloverdale, where railroad transportation is available, is from 30 to 45 miles; to Navarro it is 20 to 30 miles.

The principal article of shipment is tan bark, which costs $5 to $7 per cord to haul to Cloverdale, with $3 added for freight from Cloverdale to San Francisco. The Navarro Mill Company has under consideration a project for extending their railway, now about 10 miles in length and used for logging purposes, into the Anderson Valley, in case a harbor should be made at the mouth of the Navarro River. This railroad, if built, with or without an improved harbor, would afford relief in transportation facilities to the people of Anderson Valley, for the reason that steamers run to Navarro for eight or nine months in the year, and their products could easily be shipped during this period with an unimproved harbor, if they had any products requiring shipment.

A statement from Messrs. T. E. Rawles and T. J. McGinsey, deputy assessor and ex-deputy assessor of Mendocino County, giving in full the resources of this section of the country and their reasons why a harbor should be made at Navarro, is herewith.

When it is considered that there are fully a dozen so-called harbors or landings on the coast of Mendocino County, most of which are apparently as capable of improvement as that at the mouth of the Navarro River, and some of them could be probably made better and safer, more capacious, and equally useful harbors for less money, the conclusion based on the facts and observations of a merely preliminary exam-

ination are inevitable that a harbor at the mouth of the Navarro River is not a public necessity, and in my judgment not worthy of public improvement.

The nearest light-house is at Point Arena. The nearest collection district is San Francisco, Cal.

Respectfully submitted.

W. H. HEUER,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., November 7, 1892.

Respectfully forwarded to the Chief of Engineers.

For reasons herein stated, Navarro River is regarded as not now worthy of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers,
Division Engineer.

STATEMENT OF RESOURCES OF ANDERSON VALLEY AND NAVARRO RIVER, MENDOCINO COUNTY, CALIFORNIA.

DEAR SIR: We hereby submit the following statement of statistics of the resources of Anderson Valley and Navarro River, Mendocino County, Cal.:

	Area.		
	Farm.	Timber.	Grazing.
Tp. 11 N., R. 12 W	.....	1,500	1,500
Tp. 11 N., R. 13 W	.....	.....	1,000
Tp. 12 N., R. 12 W	.....	.....	2,000
Tp. 12 N., R. 13 W	2,800	3,000	5,600
Tp. 13 N., R. 13 W	10,000	1,000	9,000
Tp. 13 N., R. 14 W	7,800	7,800	7,800
Tp. 14 N., R. 13 W	2,000	500	6,000
Tp. 14 N., R. 14 W	7,800	7,800	7,800
Tp. 14 N., R. 15 W	2,500	15,000	2,500
Tp. 13 N., R 15 W	500	5,000	.....
Tp. 15 N., R. 15 W	1,500	20,000	1,500
Tp. 15 N., R. 14 W	.....	15,000	.....
Tp. 16 N., R. 14 W	.....	1,000	.....
Tp. 16 N., R. 15 W	.....	10,000	.....
Tp. 16 N., R. 16 W	.....	4,000	.....
Tp. 15 N., R. 16 W	2,000	15,000	.....
Tp. 16 N., R. 17 W	500	1,000	*3,500
	37,400	108,600	48,200

* Stump and grazing.

That about one-third of the area of timber lands will be suitable for the growing of fruits—apples, pears, prunes, peaches, plums, berries, etc.—after the timber is removed.

There are about 30,000 sheep within the watershed, that produce 210,000 pounds of wool annually. We sell about 6,000 hogs annually.

We estimate that there is 250,000 cords of tan bark, 3,000,000,000 of redwood lumber, 1,000,000,000 of pine lumber, and an inexhaustible amount of wood and charcoal.

That a harbor at the mouth of Navarro River would accommodate more or less the

people of Greenwood, of about 1,000 inhabitants; also, Navarro, 1,000; Whitesboro, 200; Albion, 500; Little River, 300; Mendocino City, 1,500; Anderson Valley and Yorkville, 1,700. Total, about 6,000.

That up to within the last two years the people have been so far from shipping points, viz, Cloverdale, 30 miles, and about same distance to ocean, that they have only planted fruits for home consumption. That many now are enlarging their orchards, and some have from 20 to 40 acres planted.

That there is no harbor along the coast from Eureka to San Francisco where vessels can enter in the winter with safety; that the Navarro is about midway between said points.

That is the only point that a harbor would accommodate the people in the interior.

That we make this statement with a thorough knowledge of the facts as stated, having lived in Anderson Valley since 1858.

Respectfully submitted, this September 7, 1892.

T. E. RAWLES,
Deputy Assessor.
T. J. MCGINSEY,
Ex-Deputy Assessor.

Maj. HEUER.

O

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 24.

TUOLUMNE RIVER, CALIFORNIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Tuolumne River, California.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. W. H. Heuer, Corps of Engineers, dated October 26, 1892, of a preliminary examination of Tuolumne River, California, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying report dated October 26, 1892, by Maj. W. H. Heuer, Corps of Engineers, upon preliminary examination of Tuolumne River, California, made in accordance with provisions of the river and harbor act approved July 13, 1892.

In the judgment of Maj. Heuer the improvement of this river is not a public necessity and, in view of the present and prospective demands of commerce, he does not consider it worthy of being made.

For the reasons stated in the report, Tuolumne River is not regarded by the Division Engineer, Col. G. H. Mendell, Corps of Engineers, as

worthy of improvement by the General Government at the present time; and this opinion is concurred in by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF TUOLUMNE RIVER, CALIFORNIA.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., October 26, 1892.

GENERAL: In compliance with instructions from the office of the Chief of Engineers, dated July 14, 1892, I made a preliminary examination of the Tuolumne River, California, on October 18, 1892, and have to submit the following report as a result of such examination:

The Tuolumne River rises in the hills of Tuolumne County, Cal., flows in a general direction a little south of west, and empties into the San Joaquin River some 4 or 5 miles below the town of Grayson. Its length is a little more than 100 miles, and its drainage area is reported by Mr. W. Ham. Hall, formerly State engineer of California, at 1,635 square miles. From 1879 to 1882 the river was gauged under his direction at Modesto. The minimum measured flow of the river was 30 cubic feet per second, the maximum (freshet) flow was 22,900 cubic feet per second, and the mean annual flow for the four years during which the measurements were made was about 2,700 cubic feet per second.

In the upper part of its course it receives several creeks; these during the rainy season of the winter and in early summer when the snows are melting, make torrents of the streams and cause occasional damage by the overflow of valuable lands in the lower portion of the river. The gaugings show conclusively what an insignificant stream the river is during its low-water period and what a torrent it is when in freshet. The low-water period is of variable length, but generally averages about six months in a year. The difference in level between high and low water levels is about 20 feet.

At my examination made recently there was not water enough in the river to have floated a skiff from Modesto to the mouth of the river, a distance by river perhaps of 20 to 25 miles; by land this distance is about 10 miles. The river is very crooked, the bends being sharp, short, and frequent. On account of the shallow water in the river the examination had necessarily to be made by land, reaching the river banks wherever accessible by team, and the examination of its mouth was made on foot by climbing through dense undergrowth of brush. In this way the river was seen at seven places between Modesto and its mouth. At its low-water stage, below Modesto, the river width varies from 40 to 150 feet. The depth varies from a few inches to places in pools where it is from 4 to 5 feet in depth. The current is sluggish, the stream is clear, the banks vary from 75 to 200 feet apart, are generally of sand, or hardpan in layers with sand sandwiched between them; the banks are generally covered with willows with occasional oaks not far distant. The bed is of sand; no gravel at all is visible nor is there any rock in this section of the country.

The river contains numerous small shifting sand bars and very few snags. Before the railroads were built in the San Joaquin Valley small steamboats, during high-water season, navigated the river up as far as Empire City, which was situated about 5 miles above Modesto. Their

freight consisted of grain which paid a high rate of freight, $6 to $7 per ton to Stockton, and it paid the steamboats to go there for the grain; the only competing transportation was by means of teams and teams could not carry it for any less amount. When the railroad was completed to Modesto in 1870 the freight rate to market was materially reduced, the river was bridged near Modesto by a through railroad bridge without a draw; the county also built a wagon bridge without a draw nearly alongside the railroad bridge. This barred all navigation above Modesto, but as boats could not compete in freight rates with those made by the railroad from this section of the country, the community was not materially injured by the barring of the river at this point. It is reported that the freight rate on grain from Modesto to tide water at Port Costa is about $1.60 per ton, or less than one-fourth of the old river rate of transportation.

Below Modesto, on the river, there are but three or four places from which grain has usually been shipped. They are Paradise Mill, 3 miles below, Tuolumne City or ferry, 8 miles below (by land) with perhaps two intermediate places. Paradise Mill is a steam flour mill. A boat and barge went up to this point about two years ago. Tuolumne City, so called, consists of an empty brick warehouse, a ferry, and a few farmhouses. There was one steamboat up here about two years ago. The other landings are at ranches intermediate between the two above mentioned. As a matter of fact and of prime importance steamboats and barges can only navigate this river when it is at half-flood stage, or higher; this lasts from three weeks to three months during a season. When the river is in that condition, the San Joaquin River is also high and hence navigable, and the few steamboats running can get all the freight they can advantageously handle on the latter river without going to the Tuolumne for it, and the grower and shipper of grain can, by hauling to the railroad, transport his product to market with more ease and certainty at all seasons of the year, and at a price not materially greater than by the river route. Hence the railroad has the preference.

Steamboats of late years have not been able to navigate the San Joaquin River beyond the mouth of the Tuolumne for an average of more than six months during the year, and from an examination of both rivers, I believe that whenever it is practicable to reach the mouth of the Tuolumne River, it is practicable to reach shipping points on the latter river up as far as Paradise Mills. In summer there is not enough water in the river to float a skiff; in winter, when the river is up, there is plenty of water for steamboat navigation, and at such times there are no serious obstacles in the shape of snags or sand bars to interfere with navigation. The removal of any of the above will not add any water to the river, will not induce steamboats to navigate it any more frequently than heretofore, nor reduce rates of freight or insurance, nor cause an increased acreage in planting, hence in my judgment the improvement of this river is not a public necessity, and with the limited amount of commerce in sight at present on this river, I do not consider it worthy of public improvement, hence no further survey of this river is required.

Respectfully submitted.

W. H. HEUER,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., November 7, 1892.

Respectfully forwarded to the Chief of Engineers.

For reasons herein stated Tuolumne River is regarded as not now worthy of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 25.

FRENCHS BEACH HARBOR, MAINE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Frenchs Beach Harbor, Maine.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. Peter C. Hains, Corps of Engineers, dated October 17, 1892, of a preliminary examination of Frenchs Beach Harbor, Maine, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 17, 1892, by Lieut. Col. Peter C. Hains, Corps of Engineers, of the results of a preliminary examination of Frenchs Beach Harbor, Maine, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Hains, concurred in by this office, that the harbor is not worthy of improvement by the General Government.

Very respectfully, your obedient servant.

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF FRENCHS BEACH HARBOR, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., October 17, 1892.

GENERAL: In compliance with requirements of department letter of July 14, 1892, I have made a preliminary examination of Frenchs Beach Harbor, Maine, and have the honor to submit the following report:

Frenchs Beach Harbor (so called) is formed by a slight indentation in the shore line of the west side of Penobscot Bay, about 6 miles north of Camden, and 10 miles south of Belfast. About a mile north of Frenchs Beach is what is locally known as Duck Trap Harbor.

There are two wharves at Frenchs Beach Harbor, both inexpensive affairs. A steamer used to land at the most southerly one of them, but she does so no longer. At the other one the bottom is just bare at low tide, the distance to deep water from the end of it being only a few hundred feet.

The country back of Frenchs Beach Harbor is neither fertile nor well cultivated, being rough and rocky, but a good quality of limestone can be obtained in large quantities. I was informed that there are several kilns from 2 to 4 miles back, where good lime is made, and that from 8,000 to 10,000 barrels are shipped annually from Frenchs Beach. The only other produce shipped is hay, and of that the quantity is only about 200 tons annually. I would regard $10,000 as a large estimate of the value of the annual receipts and shipments. The freighting is done on small schooners that draw about 8 to 9 feet of water, and as the mean rise and fall of the tide is over 9 feet, there is no difficulty in floating a vessel in places where the bottom is not bare at low tide. These vessels come to the wharf at high tide, and depart at the same stage.

The improvement desired is the dredging of a channel from the deep water of the bay up to the most southerly of the wharves referred to. There is no well-defined natural channel at present, and it is desired that an artificial one be made. Such a channel would not, in my opinion, remain open, but would be filled up in the first southeasterly gale to which the so-called harbor is exposed. Hence there would be needed an annual appropriation for dredging. The extension of the wharf a few hundred feet would render the dredging of a channel unnecessary.

The amount of trade is small; there is no prospect of its being increased to any appreciable extent by the improvements desired, and there is besides an almost absolute certainty of a dredged channel quickly filling up.

In view of the above, I am of the opinion that Frenchs Beach Harbor, Maine, is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

PETER C. HAINS,
Lieutenant-Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

HAMBURG BAY, ILLINOIS.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, a report of the examination of Hamburg Bay, Illinois.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. A. Mackenzie, Corps of Engineers, dated November 7, 1892, of a preliminary examination of Hamburg Bay, on the Mississippi River, in Calhoun County, Ill., made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated November 7, 1892, by Maj. A. Mackenzie, Corps of Engineers, upon preliminary examination of Hamburg Bay, on the Mississippi River, in Calhoun County, Ill., made in compliance with provisions of the river and harbor act approved July 13, 1892.

From this report it appears that a survey of a portion of Hamburg Bay was made in 1884, and that an examination of the bars in the bay was made to comply with the provisions of the river and harbor act of 1886; also that some dredging was done near the mouth of the bay in 1886 and 1889.

Maj. Mackenzie states that all the beneficial results secured by former dredging have been obliterated by new deposits, but that the bay itself is a fine one and undoubtedly worthy of improvement by the General Government to an extent justified by the interest of the commerce and navigation concerned. The information now on hand and such additional surveys and examinations as can be made in connection with the improvement of the Mississippi River will permit at any time the means of preparing plans and estimates for the improvement of this locality.

These views meet with the concurrence of the Division Engineer, Col. O. M. Poe, Corps of Engineers, and of this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HAMBURG BAY, ON THE MISSISSIPPI RIVER, IN CALHOUN COUNTY, ILLINOIS.

UNITED STATES ENGINEER OFFICE,
Rock Island, Ill., November 7, 1892.

GENERAL: The river and harbor act of July 13, 1892, provides for a preliminary examination of "Hamburg Bay, on the Mississippi River, in Calhoun County, Ill." This examination was assigned to me by letter of the Chief of Engineers dated July 14, 1892.

A survey of a portion of this bay was made under the direction of Maj. E. H. Ruffner, Corps of Engineers, in 1884.

The river and harbor act of August 5, 1886, under item for "Improving Mississippi River from Des Moines Rapids to the mouth of the Illinois River," provided for "removal of the bars at the mouth of * * * Hamburg Bay," and also provided for an examination or survey of "bars in Hamburg Bay."

The river and harbor act of August 11, 1888, under item for "Improving Mississippi River from Des Moines Rapids to the mouth of Illinois River," provided for "removing bars at the mouth of * * * Hamburg Bay, if in the opinion of the Secretary of War the same is deemed advisable in the interest of commerce and navigation."

Under date of January 17, 1887, Maj. Ruffner submitted a preliminary report upon the "bars in Hamburg Bay," from which the following extracts are given:

Hamburg Bay is an outlet into the Mississippi of several drainage streams, which cover an area of perhaps 650 square miles. These streams, which would in many cases empty into the river direct, have been diverted by the levee known as the "Sny Levee" into a common drainage outlet through Hamburg Bay, the mouth of which is 12 miles below Clarksville and 31 above the mouth of the Illinois River. A railroad crosses the river at Louisiana, and below that road, in the angle between the Illinois and the Mississippi, is an area largely depending upon the rivers as the means of communication.

The shipping points of the vicinity in question are Hamburg, 2 miles below the mouth of the bay, and Bayville, 1½ miles up the bay. When the stage of water permits there is a steamer, the *Bald Eagle*, which makes triweekly trips between St. Louis and Clarksville, calling at Bayville both ways. When the water is too low for her to run, the smaller steamer, *Dora*, takes her place in the trade. It is known that considerable quantities of produce are shipped by these boats, but I have not been able to get an exact, or even an approximate, amount of freight handled.

Hamburg Bay is also used as an ice harbor at times to winter boats in, and this winter two of the largest boats on the river, the *Gem City* and the *Saint Paul*, besides the *Flying Eagle*, a smaller steamer, and two barges, are wintering there. These boats would not have gone there this year but for the dredging of a channel through the bar at the mouth of the bay this fall.

The bars are two in number. The one at the mouth is now being dredged in accordance with the terms of the appropriation bill of 1886, and is not now an obstacle nor will be for a time at any rate. About a mile above the mouth is a second bar, which has only about 2 feet of water on it at low water, and which is a serious obstacle to the proper use of the bay.

For the reasons given above and supplemented by my knowledge of the fact that navigation interests of the locality are anxious that the bar should be removed, I have no hesitation in saying that I think the harbor is worthy of improvement.

From information already at hand, however, from prior surveys, it will not be necessary to cause further surveys to be made.

No further report on this subject was made.

Some dredging was done under the direction of Maj. Ruffner near the mouth of Hamburg Bay in 1886 and 1889.

In August, 1892, the snag boat *General Barnard* went up into Hamburg Bay, and an examination of the channel depths was made, and during the same month a personal examination of the bay was made by me.

To determine the relation of this bay to the interests of commerce, circular letters were addressed, in August, 1892, to all parties who were known to be interested in the navigation of the bay. No replies have been received.

The report submitted by Maj. Ruffner in 1887 describes the bay, its commerce, and the character of the obstructions which prevent its being fully utilized as a harbor. The bay itself is a fine one, with deep water, and, if it could be entered at all stages of the river, would form a safe winter harbor; but near its mouth obstructive bars are formed by creeks, there being at most times not sufficient current in the bay to wash away such creek deposits. Some material is also probably brought into the bay near its mouth by sloughs which connect it with the Mississippi River.

All the beneficial results secured by former dredging have been obliterated by new deposits, and it is probable that to furnish relief by dredging such work must be repeated after each freshet in the creeks mentioned. It is possible a detailed survey or examination might show that the creeks can be diverted and their injurious effect on the channel of the bay removed.

This bay is undoubtedly worthy of improvement by the General Government to an extent justified by the interest of commerce and navigation interested; but it being impracticable for me to secure the details of such commerce and navigation, I can not determine what work should be recommended.

The information now at hand, and such additional surveys and examinations as can be made in connection with the improvement of the Mississippi River, will permit at any time the means of preparing plans and estimates for the improving of the channel at the mouth of Hamburg Bay, and no further special survey is recommended.

Very respectfully, your obedient servant,

A. MACKENZIE,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., November 11, 1892.

Respectfully forwarded to the office of the Chief of Engineers.
I concur in the views of the district engineer.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 27.

HIWASSEE RIVER, TENNESSEE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Hiwassee River, Tennessee.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. Henry M. Robert, Corps of Engineers, dated August 22, 1892, of a preliminary examination of Hiwassee River, in Tennessee, from its confluence with the Tennessee River to the mouth of the Ocoee River, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, dated August 22, 1892, by Lieut. Col. Henry M. Robert, Corps of Engineers, of preliminary examination of Hiwassee River, in Tennessee, from its confluence with the Tennessee River to the mouth of the Ocoee River, provided for by the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Robert, concurred in by this office, that the river is worthy of improvement by the General Government.

An estimate of $2,000 is submitted as the cost of the survey necessary in order to prepare plan and project with estimate of improvement proposed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HIWASSEE RIVER, IN TENNESSEE, FROM ITS CONFLUENCE WITH THE TENNESSEE RIVER TO THE MOUTH OF THE OCOEE RIVER.

ENGINEER OFFICE, U. S. ARMY,
Nashville, Tenn., August 22, 1892.

GENERAL: I have the honor to submit herewith the following report of a preliminary examination of the "Hiwassee River, in Tennessee, from its confluence with the Tennessee River to the mouth of the Ocoee River," made under the provisions of the river and harbor act of July 13, 1892.

The Hiawassee, or, as it is more commonly written, Hiwassee River, rises in the mountains of the Blue Ridge, in western North Carolina and northern Georgia, whence flowing in a northwesterly direction, it breaks through the Unaka Range and enters the Tennessee River 36 miles above Chattanooga and 148 miles below Knoxville. The Hiwassee receives the tributary waters of the Ocoee about 12 miles above Charleston and 6 miles below Savannah Ford or Farm, which is held to be the head of navigation. Below the Savannah Farm the Hiwassee is of good capacity for the passage of the flatboats that run above and below Charleston. The Hiwassee River has already received the favorable consideration of Congress, as ten appropriations, aggregating the sum of $36,500, were made from 1876 to 1890, for its improvement. This sum has been expended to the advantage of its commerce and navigation. (See Annual Report of the Chief of Engineers, 1892.)

At present the Tennessee River Transportation Company of Chattanooga has one steamboat plying between Chattanooga and the Savannah Farm, though during high stages of the river the company is compelled to make transfer of freight to another of their boats at Charleston, by reason of the obstructive character of the bridge of the East Tennessee, Virginia and North Georgia Railway at that point, this bridge having no draw.

The Tennessee River Transportation Company reports the moving of 17,628 tons of miscellaneous freight during the year ending June 30, 1892. The Loomis and Hart Manufacturing Company of Chattanooga states that about 3,000 tons of logs were received from this river during the same period. To this commerce should be added that brought down by the numerous flatboats and keel boats, the full amount of which it has been impossible to collect, though it is estimated that 150 car loads of grain, besides large quantities of hay and other merchandise, have been thus brought to a market.

In view of these facts it has not been deemed necessary to make an additional examination by actual passage over the entire length of the stream between the points designated. The engineer officer in charge has recently inspected the work in progress at Matthew Shoals, about

13½ miles from the mouth of the river, and the river between that point and Charleston, about 12 miles above.

Based on the foregoing facts and statements relative to its present and prospective commerce, I am of opinion that the "Hiwassee River, from its confluence with the Tennessee River to the mouth of the Ocoee River," is "worthy of improvement by the General Government," and recommend that a survey be made from its mouth to the Savannah Farms, the head of navigation, at a cost of about $2,000, including the expenses incident to the preparation of estimates and submission of a project for the radical improvement of this river between the points last named.

Very respectfully, your obedient servant,

HENRY M. ROBERT,
Lieutenant-Colonel of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, *2d Session.* } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 28.

FOX RIVER, WISCONSIN.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Fox River, Wisconsin.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. James F. Gregory, Corps of Engineers, dated August 4, 1892, of a preliminary examination of Fox River, Wisconsin, on the necessity and advisability of building a protection wall on the canal at Kaukauna, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated August 4, 1892, by Maj. James F. Gregory, Corps of Engineers, of Fox River, Wisconsin, on the necessity and advisability of building a protection wall on the canal at Kaukauna, made to comply with the provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Maj. Gregory, concurred in by the Division Engineer and by this office, that the locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF FOX RIVER, WISCONSIN, ON THE NECESSITY AND ADVISABILITY OF BUILDING A PROTECTION WALL ON THE CANAL AT KAUKAUNA.

UNITED STATES ENGINEER OFFICE,
Milwaukee, Wis., August 4, 1892.

GENERAL: In accordance with the instructions contained in letter dated office of the Chief of Engineers, July 14, 1892, I made, on August 1, 1892, the preliminary examination required by item in section 6, river and harbor act of July 13, 1892, as follows, viz: "Fox River, Wisconsin, on the necessity and advisability of building a protection wall on the canal at Kaukauna," and I have the honor to submit the following report upon the subject:

The idea of building a "protection" or retaining wall along the line of the canal bank, at the upper Kaukauna level, seems to have originated with some of the owners of property abutting said canal bank (as no wall of the kind is necessary in the interests of navigation), and the object which they desire to secure is to prevent the land upon which their buildings are located from sliding and subsidence.

The lots in question front on Wisconsin street, Kaukauna, and have a depth towards the canal of from 60 to 120 feet. Most of them are situated on a clay side hill and their elevations at the street is from 60 to 80 feet above the canal. The canal here was built in the river, and the conditions now in respect to sliding or caving do not appear to be different from what they were when the river occupied the place of the canal, except that the canal now furnishes additional support to the bank. That the side hill slides and sinks, and has done so at various times, is evidenced by the signt. Many of the back buildings are now supported by blocks and jack-screws, and some of them are wrecks too dangerous for occupation. The owners say that they believe the dam, and consequent elevation of the water surface at the bank, and the subsequent dredging is the cause of their trouble. There is no evidence apparent to support this supposition. There has been no dredging in the immediate vicinity of the sliding land during the last two years, and all that will be necessary in the future is to remove sedimentary deposits.

The subject has heretofore been frequently called to the attention of Congress, the War Department, and this office, and several examinations and reports have been made, as well as estimates for the desired retaining wall.

Capt. W. L. Marshall, Corps of Engineers, under date of February 10, 1888, reported to the Chief of Engineers as follows:

> The map herewith shows the location of the retaining wall asked for by the petitioners. If necessary at all, it must be founded on rock, and be carried to 5 feet above the crest of the dam at Kaukauna, which would fix its height at 18 feet. * * *
>
> The entire assessed valuation of the property involved, as taken from the books of the city treasuror of Kaukauna (list herewith), is $12,415. * * *
>
> The declivity of the bank, as shown by the profiles, though great, is less than the natural angle of repose of the clay of which it is composed, and there is no evidence whatever shown by any narrowing of or filling in the canal that any sliding into the canal has occurred.
>
> In building houses and digging cellars the débris has been piled on the slopes, increasing their natural declivity, and in some cases some of this débris has tumbled into the canal, and has been afterwards dredged out. The people of Kaukauna in this way have injured the canal, and put the United States to expense.
>
> A retaining wall is not necessary for protecting the interests of the public in the navigation of the Kaukauna canal, and I can see no reason to believe that the canal has been the cause of any damage at Kaukauna. If subsidence has taken place, it has been from natural causes, frost, ice, and water, or from the natural condition of the bank as modified by the building thereon. The rock formation is a stratified Silurian limestone, and subsidences are common throughout all the region where

such a formation, capable of solution by water, exists. The slopes have not been made by the work of the United States, such as to cause caving or sliding.

To build a retaining wall, * * * when no other interests, either public or private, are concerned, and when it does not even certainly appear that it will meet the demands of the case, seems to me to be an absurd proposition. I therefore respectfully recommend that no steps be taken to comply with the demands of the petitioners.

It should be remarked that the assessed value of the property in 1888 was estimated to be about one-third of its actual value.

On June 13, 1892, the Chief of Engineers referred to me for report another communication upon this subject. My report of June 18, 1892, was as follows:

In this connection attention is invited to a report made upon this subject to the Chief of Engineers by Capt. W. L. Marshall, dated Milwaukee, February 10, 1888, and its inclosures. I have twice seen the locality in question, and have had occasion to review the correspondence upon the subject, but to get any additional information that might be had, I sent Lieut. H. E. Waterman, Corps of Engineers, to Kaukauna on June 16, with instructions to interview the complainants and to inspect the premises. A copy of his report to me, dated June 17, 1892, is inclosed.

There are no reasons apparent to me for differing from the conclusions of Capt. Marshall and Lieut. Waterman, as given in their reports, that the United States is not responsible for the sliding of the banks which has taken place, or for that which will probably take place in future; and I therefore can not recommend that the United States undertake a work for their protection. It will be observed that in his report Lieut. Waterman states: "No dredging at all has been done in this vicinity this year, nor in fact within the last two years."

If the land in question were the property of the United States it might possibly be desirable to have the bluff reduced to a more gentle slope, and the cheapest way to do that (in the interests of the navigable waterway) would be to let it slide into the canal under the operation of natural causes, and then remove the material by dredging as occasion should demand.

Having reviewed the whole matter, and having again visited the locality and had interviews with a number of the interested complainants, I have found no reason for modification of my opinion above expressed that the works of improvement of the United States are not the cause of the present condition of the sliding banks at Kaukauna, and that the proposed protection wall is not necessary or advisable in the interests of navigation. I have therefore respectfully to report that in my opinion the locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

JAMES F. GREGORY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., August 6, 1892.

Respectfully forwarded to the office of the Chief of Engineers.
I concur in the opinion of the district engineer.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 29.

CRESCENT CITY, CALIFORNIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of harbor of Crescent City, Cal.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. W. H. Heuer, Corps of Engineers, dated November 5, 1892, of a preliminary examination of harbor of Crescent City, Cal., made by him in compliance with the provisions of the river and harbor act act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated November 5, 1892, by Maj. W. H. Heuer, Corps of Engineers, upon preliminary examination of harbor at Crescent City, Cal., made to comply with provisions of the river and harbor act approved July 13, 1892.

From this report it will be seen that several examinations of this harbor have been made at various times, but that nothing in the way of harbor improvements has been recommended for reasons which have been stated in the various reports.

Maj. Heuer states that as no changes have taken place in the road-

stead since former surveys and reports were made, the roadstead of Crescent City in his judgment is not worthy of public improvement to the extent of building a breakwater. One improvement which might be made is the removal of Fauntleroy and a few other sunken rocks at and near the entrance to this roadstead, and Maj. Heuer recommends a survey estimated to cost $1,000 to determine the nature and extent of such improvement.

Col. G. H. Mendell, Corps of Engineers, the division engineer, reports that the great expense attendant upon construction of a breakwater at Crescent City makes the port not worthy of that kind of improvement by the General Government.

The construction of a breakwater at Crescent City is not considered by this office as worthy of being undertaken by the United States.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HARBOR OF CRESCENT CITY, CALIFORNIA.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., November 5, 1892.

GENERAL: In compliance with the river and harbor act of July 13, 1892, which required an examination of Crescent City Harbor, California, I went to Crescent City, Cal., on September 19, 1892, examined the harbor and have to submit the following report thereon:

Crescent City Harbor, with a view to its improvement, has been examined and reported upon to Congress on several occasions as follows:

The first examination was made in 1867 by Lieut. Heuer, then assistant to Lieut. Col. Williamson. A breakwater of rock some 3767 feet in length was projected and estimated for, to extend from Battery Point to Light-House Rock, thence to Steamboat Rock and beyond in an easterly direction about 1,650 feet. The estimated cost of this structure was about two and one-sixth millions of dollars, and Lieut. Col. Williamson in his report on this subject, printed in the Annual Report of the Chief of Engineers for 1867, page 515, says:

> We must come to the general conclusion that any breakwater at Crescent City must be a work of immense magnitude; that it is impossible to make any but a very rude approximation as to the cost of its construction, but that at least $2,000,000 would be required for it, and it may require several times that amount. The argument in favor of a work of this kind at that place is, that it is the only place between San Francisco and Cape Flattery where a harbor of refuge can be made and hence one should be made there. There is no great city there, and no populous back country. Crescent City has but 100 or 200 inhabitants, if it has as many. All to the rear is a sparsely settled country or dense forest. The immense expenditure required for the construction of a breakwater at that place would be but the beginning of a large series, etc. Probably also constant work would be required in dredging to prevent its being filled up. With all these facts in view I do not recommend an appropriation for the commencement of a breakwater at Crescent City at present. * * *

The next official examination of Crescent City Harbor was made in 1877 by a board of United States engineers who were directed to examine various places on the Pacific coast with a view of selecting a harbor of refuge on this coast and to report a project and estimate for

same. This board in its report, printed in the Annual Report of the Chief of Engineers for 1877, page 1053, say with reference to Crescent City Harbor:

> This harbor is not favorably situated for a breakwater because—
> (1) It is contracted.
> (2) On account of the many dangers, sunken and otherwise, both in approaching the coast and inside the anchorage.
> (3) Because of the heavy breakers in southeast and southwest winds clear across the entrance to the harbor from Steamboat Rock to Round Rock, from Round Rock to Mussel Rock, and from Mussel Rock to the shore. The entire harbor is feather-white with breakers in a gale of wind from the southward. Crescent City is usually regarded as the most dangerous roadstead on this coast. It has acquired importance on account of the town of Crescent City being conveniently located as the depot of supplies for Jacksonville, in Oregon, and the interior towns and mining camps. It also has a considerable trade in lumber. A vessel off this coast, and wishing to make a harbor of refuge, would never venture into Crescent City Harbor unless the master knew his position accurately and was well acquainted with the coast and all the sunken dangers; and should he arrive off the harbor he could not enter it with safety in heavy southerly weather on account of the breakers at the entrance. Nevertheless, in order to have definite ideas as to the location and cost of a breakwater here, we have included it among the roadsteads for which we have given plans and estimates for breakwaters.

The breakwater designed by this board was to be composed of small stone up to the level of 15 feet below low water and to use blocks of 5, 10, and 20 tons above this level up to low water. On this as a foundation they proposed to build a masonry wall faced with granite, 25 feet wide and 20 feet high, protecting the seaward side by immense blocks of natural or artificial stone and paving the harbor side with large blocks of granite so as to receive without displacement the water that would be thrown over the wall in great storms. The breakwater was to start from Light-House Island, extend to Steamboat Rock and thence in the prolongation of this line to extend 3,130 feet beyond, having a total length of 5,000 feet, and was estimated to cost $6,022,940, or an average of about $1,200 per running foot. Both the projects of 1867 and 1877 contained a breakwater between Light-House Rock and Steamboat Rock, a distance of 1,870 feet. The estimate of the board for 1877 for this portion of the work was $1,948,870, or in round numbers say two millions of dollars.

In 1879 the late Gen. B. S. Alexander reported against building a harbor of refuge at Crescent City. His reasons for his conclusions are reported in the Annual Report of the Chief of Engineers for 1879, page 1786.

In 1887 Capt. Payson, of the United States Engineers, reported adversely on a plan of harbor improvement. From this report, printed in Annual Report of the Chief of Engineers for 1887, page 2455, the following is extracted:

> Owing to the slight depth of water in which the wall as contemplated in the act would have its outer end, it would not when completed appreciably improve the shelter now naturally afforded to the anchorage, and from its faulty direction it would be useless as the starting point of a breakwater designed to afford a radical improvement should such a measure ultimately be decided upon. The cost of the work would be about $140,000, but for the reasons above given I should recommend that if any work be undertaken for this harbor it be directed to the construction of a wall between the Light-House Island and Steamboat Rock. Such a wall would give in itself a valuable addition to the existing shelter and form part of any general plan for making the roadstead secure in all weathers for a small number of vessels.
> The cost would be in the neighborhood of $1,500,000 for the wall carried to Steamboat Rock, and this would probably make it safe for one or two small vessels to lie in the roadstead in all weathers at properly laid permanent moorings. The commerce benefited would be local only, for reasons fully set forth in the report of the Board of Engineers on Harbors of Refuge (Report of Chief of Engineers, 1881),

showing the unfitness of Crescent City Harbor for a general refuge for Pacific Coast commerce.

Admitting that the local commerce is important enough to justify some expenditures for its better protection, I am not prepared to believe that a work of such magnitude as will alone effect a material improvement is now warranted by the circumstances of the case.

Sufficient data is already available for a detailed project without further survey or examination.

It will thus be seen that several examinations, at various times, of Crescent City Harbor have been made, and reports thereon have been submitted, but that nothing in the way of harbor improvement has been recommended for reasons which have been stated in the various reports.

Crescent City is a town reported to contain about 1,500 inhabitants. It has a sawmill (the only manufacturing industry), various churches, schools, a few stores, several hotels, numerous saloons, and the usual number of buildings pertaining to a small town, but it has no telegraphic communication with the rest of the world.

The town is situated right on the ocean beach, and is prevented from injury by driftwood and logs coming from the Klamath River during freshets by a barricade of timber logs 16 to 30 inches in diameter set on end and close together along the whole front of the town.

It is by far the largest place in Del Norte County, which has an ocean frontage about 30 miles in length, and is the only shipping port at which seagoing vessels touch in the county. There is a railroad, some 13 miles in length, operated daily between Smith River Corners and Crescent City, on which the rates of freight are about $2.50 per ton for merchandise and over which the passenger rates are 75 cents per head. These rates are probably due to the limited amount of traffic between the two places. Back of Crescent City for 10 miles or more, and extending up and down the coast for from 20 to 30 miles, are dense forests of pine and redwood timber, with here and there good grazing and farming lands. The nearest railroad is that extending from San Francisco to Portland, Oregon, and communication between Crescent City and this railroad is maintained by a daily line of stage coaches over a good mountain wagon road reported to be 90 miles in length. It requires twenty hours of stage riding to cover this distance.

Crescent City Bay or Harbor, so called, is an open roadstead in latitude 41° 44′ north and longitude 124° 12′ west. Prof. George Davidson, of the U. S. Coast and Geodetic Survey, in his Pacific Coast Pilot, describes the harbor as follows:

> It is a very contracted place, being very little more than 1½ miles in extent east and west and three-quarters of a mile north and south. But the low-water beach is very broad, and the line of 3 fathoms is half a mile from shore at the anchorage. It is filled with sunken rocks and reefs and has a goodly number showing above water. No navigator should think of gaining an anchorage here without a pilot, unless he has a perfect knowledge of the hidden dangers. No sunken rocks are known to exist outside of the line of visible ones except one awash southwest three-quarters west (SW. ¾ W.), and a little more than half a mile from the light-house. In the approaches from the south there is a 4-fathom ledge to be described. Approaching from the southeast the line of 10 fathoms, which was only half a mile off the coast abreast the Sisters, gradually increases to 1 mile offshore within 2 miles of the anchorage, but to the westward of the bay this line again comes closer to the shore and rocky islets.
>
> There is now a fine wharf at this place.

Prof. Davidson then continues by describing some twenty or more rocks, sunken and otherwise, in this limited anchorage or harbor. There are scores of rocks visible at low water irrespective of those above referred to, but they are so near the shore that a vessel would

never from choice approach them. Extending from the beach in a southeasterly direction is a fine wharf, about 1,700 feet in length, about 40 feet average width and about 90 feet in width at its outer end, which terminates in a depth of about 12 feet of water at low tide. Outside of this are numerous moorings with buoy and chain attachments, so that vessels can lie near the wharf and discharge cargo. During the calendar year 1891 four steam vessels and four schooners loaded at this wharf, making in the aggregate 53 trips, or an average of about one vessel per week, and the lumber shipped on these vessels during that year aggregated about 12,000,000 feet. The freight rate on lumber from Crescent City wharf to San Francisco is $4 per ton, so that the total amount of freight chargeable to lumber for that year would aggregate about $48,000. The aggregate of other freight is small as compared with lumber.

In 1892 no sailing vessels had arrived in Crescent City, but steamers have been in the harbor fifty-four times during the past eight months of this year, and the shipments of lumber in this time have been a little less than 5,000,000 lumber feet.

The people of Crescent City want their harbor improved, because it is the only harbor in Del Norte County, and it is their desire to have steamers reach their port with as much regularity during the winter as during the summer months. With this object in view they petitioned to Congress in a memorial stating their wants, the resources of the county, and submitted many facts and figures to prove the same. A copy of said memorial* is herewith appended.

It is claimed that the reason that lumber shipments from Crescent City are not larger is that the shipping facilities are poor for want of harbor improvement. The true reason, however, is that there is only one sawmill in operation to produce lumber, and even if more mills were in operation and lumber brought for shipment beyond the capacity of the present wharf, which is at present more than adequate, it would be a simple matter to construct one or even two more wharves. If freight could be had there would be no difficulty with the present shipping facilities in getting vessels to call at Crescent City for it. It has been shown that it takes two days at present to load a vessel, and that one vessel a week is the average calling at Crescent City, so that with the present facilities three vessels a week could be loaded and, if available, an output three times as great as at present handled.

Crescent City Harbor is naturally protected against northwest, north, and northeast winds. For nearly eight months in the year the prevailing winds are from the northwest; during the winter the winds come from the southeast, south, and southwest. Against seas from these directions the harbor or roadstead has no protection whatever. With any swell from the south, southeast, or southwest no vessel can safely lie at the wharf. Some of the prominent people in Del Norte County, who are interested in the wharf company, in the shipping, and in the only sawmill at present in or near Crescent City, desire that their harbor be improved by the construction of a breakwater, commencing at Light-House Rock and extending in a general southeast direction to Steamboat Rock, which is distant 1,870 feet. The greatest depth of water on this line is about 40 feet, and the mean depth is 26 feet below the level of mean low tide. A breakwater constructed on this line would have to be strong enough to stand secure against the most violent southwest seas, * * * and if constructed it would protect an

* Omitted.

anchorage area of about 26 acres, having a depth of 18 feet or more, and within this very limited area there are at least two, and possibly more, sunken rocks or ledges whose volume is unknown, covered by water less than 14 feet deep.

The holding ground in this anchorage is not good, being either hard or rocky, and during the prevalence of such gales no vessel could with safety enter or leave the harbor, nor could she with absolute safety remain there. It would afford no protection whatever against southerly or southeasterly seas, but fortunately these are not frequent nor of long duration. This breakwater, if constructed, might protect the wharf, estimated to cost $40,000, against serious damage from logs coming in during southwest storms, and occasionally might enable a steamer to lie at anchorage under the lee of the breakwater, when under other circumstances she would be out at sea, and thus save some expense to the vessel. It is a fact that one of the small steamers plying to this port has been known to lie out at sea for three weeks, waiting for the sea to go down, so that she could enter the harbor and discharge and take on her load. The running expense of such a vessel is estimated at about $4,000 per month, or say $1,000 per week; the vessel itself could be duplicated for about $35,000 or $40,000.

It has been shown that the freight on lumber shipments from Crescent City for the year 1891 was about $48,000. It is doubtful if the freight account for all outgoing shipments for a year exceeded $60,000. The assessed valuation of all the property in Crescent City is $291,160, while the assessed valuation of the county is $2,218,227.

* * * * * *

It is not admitted that the construction of a breakwater will reduce freight or insurance rates to or from Crescent City, and if a breakwater * * * can probably not benefit a small local community to the extent of interest on its cost of construction, it can not certainly benefit the community at large to any appreciable extent. * * *

Erosion, on account of the wash of the sea, is annually occurring just inside the head at Battery Point, where the land is composed of clay, sand, and gravel. This tongue of land is now but a little more than 60 feet in width, and the rocky or outer end of Battery Point is liable to become an island separated from the mainland by a distance of about 100 yards in length. When this shall have occurred the town of Crescent City will be more than ever exposed to the wash of the sea during some gales, but the presence or absence of this rock will have no effect on the roadstead, and hence its protection is not a matter of consideration for the General Government. To the residents along the water front of Crescent City its protection should be a matter of great importance. From Battery Point to Light-House Island is a distance of 700 feet. At low water one can walk over this space dryshod. During gales the sea sweeps through this opening with great violence, but is broken up by scores of projecting rocks before it reaches the wharf or shipping; hence its closure is more desirable for the light-house keeper than necessary for the protection or improvement of the harbor.

One improvement of the harbor which might be made is the removal of Fauntleroy and a few other sunken rocks at and near the entrance to this roadstead, but their areas, volumes, and estimated cost of removal can only be determined by actual survey, and a survey is recommended at an estimated cost of $1,000, but this survey can not be made in the winter with any degree of accuracy and should be deferred until next summer.

As no changes have taken place in the roadstead since former surveys and reports were made, I have to state in conclusion that in my judgment the roadstead of Crescent City is not worthy of public improvement to the extent of building a breakwater there, simply and solely because the expense of making this improvement is incommensurate with the benefits likely to result therefrom, either in a local or general sense.

To Messrs. Hobbs, Wall & Co., who are deeply interested in the property of Crescent City, as also to a few other citizens of Crescent City, I am indebted for courtesies and attention shown me on my recent trip.

The nearest light-house is in Crescent City Bay, and the nearest collection district is Eureka, Humboldt Bay.

Respectfully submitted.

W. H. HEUER,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.
(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., November 11, 1892.

Respectfully forwarded to the Chief of Engineers, U. S. Army.

The great expense attendant upon construction of a breakwater at Crescent City makes this port not worthy of this kind of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers,
Division Engineer.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 30.

HARBOR AT MOLINE, ILLINOIS.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of harbor at Moline, Ill.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. A. Mackenzie, Corps of Engineers, dated November 7, 1892, of a preliminary examination of harbor at Moline, Ill., made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: The river and harbor act approved July 13, 1892, provided for a preliminary examination of the harbor at Moline, Ill. This examination has been made by Maj. A. Mackenzie, Corps of Engineers, and a report thereon submitted under date of November 7, 1892, a copy of which is herewith.

An examination of Moline City Harbor and report were also made by Maj. Mackenzie in 1888 to comply with the requirements of the river and harbor act of August 11, 1888. He now states that there have been but few changes in condition since that report was made, and

those changes are not such as to alter the opinion formerly expressed, that the harbor is not worthy of improvement by the General Government after the manner proposed and desired by the city of Moline.

Col. O. M. Poe, Corps of Engineers, the division engineer, concurs with the district engineer, and the views of these officers are also held by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HARBOR AT MOLINE, ILLINOIS.

UNITED STATES ENGINEER OFFICE,
Rock Island, Ill., November 7, 1892.

GENERAL: The river and harbor act approved July 13, 1892, provides for a preliminary examination of "Harbor at Moline, Illinois." Such examination is assigned to me by letter dated Office Chief of Engineers, July 14, 1892.

The river and harbor act of August 11, 1888, provided for an examination of "Moline City Harbor, Illinois," with a view to determining whether or not such harbor was worthy of improvement by the General Government. Such examination was made by me, and reported on under date of December 7, 1888, which report is found in the Report of the Chief of Engineers for 1889, pages 1777–1781. My conclusions were that under the conditions then existing, and considering cost, the harbor was not worthy of improvement by the General Government.

Since the former report was submitted the only conditions which have been changed are, that under the supervision of the Ordnance Department, U. S. Army, the channel cut in the rock bottom to permit a freer flow of water to the water-power pool, has been widened materially in its upper portion. This cut as it now exists, while having an elbow not favorable to interests of navigation, is nowhere less than 200 feet in width, and is used even at low stages of water by boats drawing 24 to 30 inches of water and carrying building rock, sand, and occasionally brick and tile, into Moline Harbor. Small size raftboats also have made use of the channel as far down as the Moline bridge.

It is understood that the channel and harbor desired by the city of Moline is now—as when my last report was submitted—one that will permit all classes of boats to come down, at all stages of the river, from the head of the water-power pool to the main shore above the Moline bridge, at a point set aside by the city as a public landing. While the rock excavation recently carried out under the direction of the commandant of the Rock Island Arsenal reduces somewhat the former estimate of cost, it still remains my opinion that the cost of work necessary for completing such a channel is not justified by the interests of navigation involved.

For further details concerning the work I would respectfully refer to my report of December 7, 1888. There have been but few changes in condition since that report was made, and such changes are not such as to alter the opinion formerly expressed, that the harbor is not worthy of improvement by the General Government after the manner proposed

and desired by the city of Moline. And, so far as I am informed, it is the city only that has any material interest in the work desired.

Detailed surveys of the harbor were made in connection with "Development work in water-power pool at Rock Island Arsenal," and no further surveys are needed.

Very respectfully, your obedient servant,

A. MACKENZIE,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., November 11, 1892.

Respectfully forwarded to the office of the Chief of Engineers.
I concur in the views of the district engineer.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer Northwest Division.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 31.

VINAL HAVEN, MAINE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Vinal Haven, Maine.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. Peter C. Hains, Corps of Engineers, dated October 26, 1892, of a preliminary examination of Vinal Haven, or Carver Harbor, Maine, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 26, 1892, by Lieut. Col. Peter C. Hains, Corps of Engineers, of preliminary examination of Vinal Haven or Carver Harbor, Maine, two names used to designate the same locality, made to comply with requirements of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Hains that the locality is worthy of improvement by the General Government to a limited extent, and he submits an estimate of $800 as the cost of the survey necessary to the preparation of plan and project, with estimate of the improvement proposed.

His views are concurred in by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF VINAL HAVEN, OR CARVER HARBOR, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., October 26, 1892.

GENERAL: In compliance with requirements of Department letter of July 14, 1892, I have made a preliminary examination of Vinal Haven, or Carver Harbor, Maine, and have the honor to submit the following report:

Vinal Haven and Carver Harbor are two names for one and the same place. Vinal Haven is the name of a large island at the mouth of Penobscot Bay. It is also the name of a town located on the island and at the head of Carver Harbor.

The harbor is small in area, but it is easy of access. It is reported that some 5,000 vessels, large and small, arrive and depart from it annually, many of them seeking it as a harbor of refuge. The estimated gross amount of shipments for 1891 is about 95,000 tons. Most of this was granite paving blocks and dimension stone. About 2,000 tons of it were fish, in barrels, boxes, and bundles. The receipts were estimated to amount to about 15,000 tons for the same year, being for the most part granite, lumber, and coal. The total value of receipts and shipments for that year was perhaps $500,000. The last year the receipts and shipments were much less, owing to the strike among the granite cutters.

There are several granite quarries at Vinal Haven, and a fine grade of stone is quarried there. The vessels that carry it generally load to about 14 feet, but as there is for the most part less than 8 feet in the harbor at low tide, they can depart only at or near high tide. This, it is said, sometimes causes vexatious delays, as advantage can not be taken of a fair wind to put to sea, unless the tide is favorable at the same time. With sufficient depth of water there need be no delays on account of low tides, which would be a great convenience.

The fishermen who come in with fish, or for a harbor, draw less water, but even they sometimes find their vessels aground, when the wind is favorable for their departure.

The harbor has, it is said, filled up to the extent of 2 to 3 feet in the last twenty years. I am not able to verify this statement, and it does not seem probable, but if it be true it is easily seen that great inconvenience to navigation may result therefrom.

The improvement desired is the deepening of the harbor to about 8 feet or more at mean low tide. It is probable that this depth would answer for a large part of the existing anchorage, but a greater depth may be necessary for a part of it.

In view of the above I am of the opinion that Vinal Haven, or Carver Harbor, is worthy of improvement to a limited extent.

To determinine the nature and extent of the improvement, a survey is necessary, and is recommended, the estimated cost of which is $800.

Very respectfully, your obedient servant,

PETER C. HAINS,
Lieutenant-Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 32.

NOOKSACK RIVER, WASHINGTON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Nooksack River, Washington.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report, with map, from Capt. Thomas W. Symons, Corps of Engineers, dated October 13, 1892, of a preliminary examination of Nooksack River, Washington, with a view of removing obstructions, straightening channel to prevent jams, and the filling of Bellingham Bay with deposits of earth, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: The river and harbor act approved July 13, 1892, provides for preliminary examination of Nooksack River, Washington, with a view of removing obstructions, straightening channel to prevent jams, and the filling of Bellingham Bay with deposits of earth.

This duty was assigned to the charge of Capt. Thomas W. Symons, Corps of Engineers, and I have now to submit the accompanying copy of his report, dated October 13, 1892, with map, of the results of the examination.

Capt. Symons states that the filling up of Bellingham Bay with deposits of earth brought down by the Nooksack River is a matter which may well receive the attention of the General Government, and it is his opinion that the situation is worthy of improvement by the

General Government to the extent of preventing the detritus brought down by the river from entering the bay, or if brought into the bay, to limit its dispersion and deposition to a particular area where it will do little or no harm. He further states that as far as that portion of the examination which relates to removing obstructions and straightening channel to prevent jams is concerned, it is his opinion that all requisite work can be properly provided for under the regular appropriations for improving Puget Sound and its tributary waters.

The Division Engineer is of opinion that the Nooksack River is worthy of improvement by the General Government to the extent necessary to protect Bellingham Bay from shoaling by reason of deposits from river water, and his views are concurred in by me.

The cost of the survey necessary to prepare plan for the work is estimated to be $1,000.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF NOOKSACK RIVER, WASHINGTON, WITH A VIEW OF REMOVING OBSTRUCTIONS, STRAIGHTENING CHANNEL TO PREVENT JAMS, AND THE FILLING OF BELLINGHAM BAY WITH DEPOSITS OF EARTH.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, October 13, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of Nooksack River, Washington, with a view of removing obstructions, straightening channel to prevent jams, and the filling of Bellingham Bay with deposits of earth.

The Nooksack River rises in the Cascade Mountains in the vicinity of Mounts Baker and Shuksan, and flows westerly, emptying into Bellingham Bay. In its upper portions it is a mountain torrent, but for the last 25 miles of its course it is a narrow, tortuous stream, flowing through the magnificent Nooksack Valley, which is from 1 to 6 miles broad, of low lands, and bordered by many miles of fertile timbered table-lands.

It is fringed with heavy timber and brush, and is subject to sudden heavy freshets that wash the banks, letting in trees, roots, and stumps that lodge at different points and cause a shoaling or bar formation. During times of high water navigation is comparatively easy, but at low stages it is difficult and dangerous. It being a short, swift river, the high water does not last very long.

In early days the Nooksack River was an important highway both for whites and Indians, owing to the dense forests covering the country through which it runs and the lack of roads and trails. Of late, however, this importance has very much diminished, owing to the fact that the river is now reached by three railroads, the Great Northern Railroad at Ferndale, the Bellingham Bay and British Columbia Railroad at Roeder, and the Northern Pacific Railroad, which strikes the south fork of the river at Acme and runs parallel with it and the main river for about 20 miles.

I am informed that there are three small steamboats which occasionally run on the river, the *May Queen*, *Advance*, and *Minnie M.*

As far as that portion of the examination which relates to removing

obstructions and straightening channel to prevent jams is concerned, it is my opinion that any further survey is unnecessary, and that all requisite work can properly be provided for under the regular appropriation for "improving Puget Sound and its tributary waters."

Snags and trees will continue to come into the river for years and form obstructions, and these must be periodically removed. Under existing conditions there seems little danger of jams of any magnitude forming. Whatever danger of this may exist can hardly be obviated by any preventive measures known to me.

FILLING OF BELLINGHAM BAY.

The filling up of Bellingham Bay with deposits of earth brought down by the Nooksack River is, however, a matter which may well receive the attention of the General Government, and it is my opinion that the situation is worthy of improvement by the General Government to the extent of preventing the detritus brought down by the river from entering the bay, or if it be brought down into the bay, to limit its dispersion and deposition to a particular area where it will do little or no harm.

I send herewith a little sketch showing the general situation, and to which attention is invited.

Until about fifty years ago the Nooksack flowed out into Lummi Bay by the "Former Outlet," as marked on the sketch. The present outlet did not then exist or was insignificant. A big jam of timber was formed in the river just below the junction, and forced the river to open its present channel, which has remained open ever since. The former outlet is now entirely closed.

Ths Nooksack River in flood unquestionably carries an enormous amount of sediment. It has filled Lummi Bay and has caused a large deposit in the northern and western portions of Bellingham Bay, and if unchecked it is simply a question of time when Bellingham Bay will be filled. Reliable parties state that the sand flats at the mouth of the Nooksack have extended out more than a mile within the past thirty years.

Two methods seem applicable to the situation. One is the closing up of the present outlet and the opening of the former outlet, and the compelling of the river thus to discharge into Lummi Bay and the Gulf of Georgia.

The second would be the building of a dike or sand fence to prevent the sediment brought down by the present river from going over to the eastern and commercially important part of the bay. This could be built at first as far as there seems pressing necessity, and be afterward extended from time to time as the area of deposition increased.

It is my opinion that the Nooksack River and BellinghamBay are worthy of improvement by the General Government as above outlined.

The survey for the work should consist in making a careful comparison of existing conditions with the conditions existing in 1855, at the time the bay was first surveyed by Capt. Alden, of the Coast Survey, and determining the amount and rate of sediment deposition. If this should be convincing as to the necessity of immediate action, then the survey should be sufficient to determine as to the practicability and cost of turning the river into its old channel, and to give consideration to the vested interests that would be interfered with by so doing. There should also be a study made of the currents in Bellingham Bay, and other physical data, to determine whether it will be practicable to limit the area of deposition as previously suggested.

The influences of the fresh waters of the Nooksack in limiting or preventing the ravages of the teredo should also be considered, as there are persons who think this an advantage paramount to the disadvantage of the sediment brought down by the river.

A careful survey to determine the best course to pursue to accomplish the desired end, and to make a report, plan, and estimate of the cost thereof, will cost, it is estimated, $1,000.

COMMERCE, ETC.

Bellingham Bay is a beautiful arm of what is generally known as Puget Sound, which is situated near the international boundary line. It has the peculiarity among Puget Sound waters of being shallow enough to afford anchorage to vessels. Its ordinary depths are from 25 feet at the wharves to 100 feet in the deepest places. At other sound ports the ordinary depths are from 200 to 600 feet. While this shallowness is an advantage in one way, it is disadvantageous in another way, in that the same amount of sediment will fill a greater area.

Upon the banks of the bay are the two promising cities of New Whatcom and Fairhaven, the first with a population of about 8,000 and the second with about 3,000. These cities are the natural distributing points and seaports for the Nooksack Valley and large sections adjoining, and as well for the San Juan Islands.

Coal has been mined and shipped from Whatcom for many years.

There are said to be 13 sawmills on the bay, with an aggregate yearly capacity of 200,000,000 feet.

The cedar-shingle business has become of great importance, $100,000 worth per month being shipped from the bay.

I have the honor to inclose herewith copy of a letter received from Mr. Edward Eldridge, an old and highly respected citizen of New Whatcom, upon the general situation.

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., October 17, 1892.

Respectfully forwarded.

The Nooksack River, Washington, is regarded as worthy of improvement by the General Government to the extent necessary to protect Bellingham Bay from shoaling by reason of deposits from river water.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

LETTER OF MR. EDWARD ELDRIDGE.

WHATCOM, WASH., *August 5, 1892.*

DEAR SIR: In view of the rapidly increasing volume of commerce in the waters of the State of Washington, and the necessity of maintaining proper harbors for its accommodation, I would respectfully present for your consideration a brief statement of the condition of the harbor on Bellingham Bay, which is destined to become a

port of great importance, being the central point for the combined commerce of Washington and British Columbia. It contains the largest space of any harbor within the Straits of Fuca, where vessels can safely ride out the heaviest gales in less than 20 fathoms of water.

Ten years of my life were spent upon the ocean, and in a few months I will have resided forty years on Bellingham Bay, during which period I have carefully studied the advantage and disadvantages of this place for a commercial emporium.

Although there is a great space where vessels can safely ride at anchor, there is but a small space where vessels can load and unload in perfect safety at all seasons, and that is inside of a line drawn from Poes Point to the mouth of Squalicum Creek, and is in front of the town of Whatcom, and part of Fairhaven, and following the shore line is nearly 4 miles in length, but as there are extensive flats in front of Whatcom, which are dry at low tide, only a portion of this space is available for shipping, and the available space is constantly decreasing from the sediment that is being deposited thereon. The Lummi or Nootsack River empties into the northwest corner of Bellingham Bay. It has another mouth, which empties into the Gulf of Georgia, but which has been blocked up for many years by jams, causing all the current to come to Bellingham Bay. Immense deposits of silt are lodged in Bellingham Bay by this river, and before the white man settled along the river it consisted principally of sand from the mountains caused by the rains and snow slides.

When the white man first came to Bellingham Bay there was a dense growth of jungle all along the level banks of the river, from the bay to the mountains. This prevented the rains from washing the alluvial soil into the river, and the roots of the trees and vegetation prevented the river cutting away the banks. Forty years ago the deposits at the mouth of the river were dry at low water nearly three quarters of a mile out into the bay. Now they are almost 2 miles from the mouth of the river. But since the white man settled the fertile lands along the river have been cleared and cultivated, and when the heavy rains fall in the rainy season, instead of being filtered through the grass and moss and foliage, they flow over the bare soil, carrying much of the soil into the river, and the trees which protected the banks from the encroachments of the river are mostly gone, and acre after acre of rich soil disappears into the river every year; and although the action of the river leaves on one side of the river what it takes away from the other, most of the fine soil is carried down and deposited in Bellingham Bay. And as the heavy winds during the rainy season force the river current along the north shore it deposits much of this mud within our harbor area, which is shallowing now at the rate of a foot per annum. This is not at all produced by the river, but the worst portion of it is, for sawdust would float away, but when mixed with mud soon sinks. The best portion of this harbor is in front of what is known as the Pattle Donation Claim. It has deep water close to the shore, and is completely sheltered from all our heavy winds. When I first came here the largest ship afloat could at high water haul in to the shore, make fast to the trees, rig a gangway on to the bank, and discharge her cargo, having a kedge out from her bow and quarter to haul off 30 or 40 feet as the tide went down. Now the same sized ship could not get within 100 feet of the bank.

To go on as at present, the time will come when all that protected space will be filled up so that no ship could get a safe place to load and unload, because outside of that line the storms make the bay so rough that it would be difficult to load and unload. To prevent this, it becomes absolutely necessary (1) to open the other mouth and turn the current of the Nooksack River into the Gulf of Georgia; (2) to provide suitable dredging machines to remove much of the accumulation of late years, and (3) the enactment of strict laws and their efficient enforcement to prevent sawdust or any other material ftom being deposited into the harbor.

The closing of this river will discommode a few of our settlers and will, naturally, be objected to by them, but the policy of our Government is based upon the principle of obtaining the greatest good for the greatest number, and the convenience of a few must give way when the welfare of the many must otherwise suffer, and the welfare of the nation requires the preservation of a safe harbor at this point, both from a naval, a military, and a commercial point.

I am, respectfully, your obedient servant,

EDWARD ELDRIDGE.

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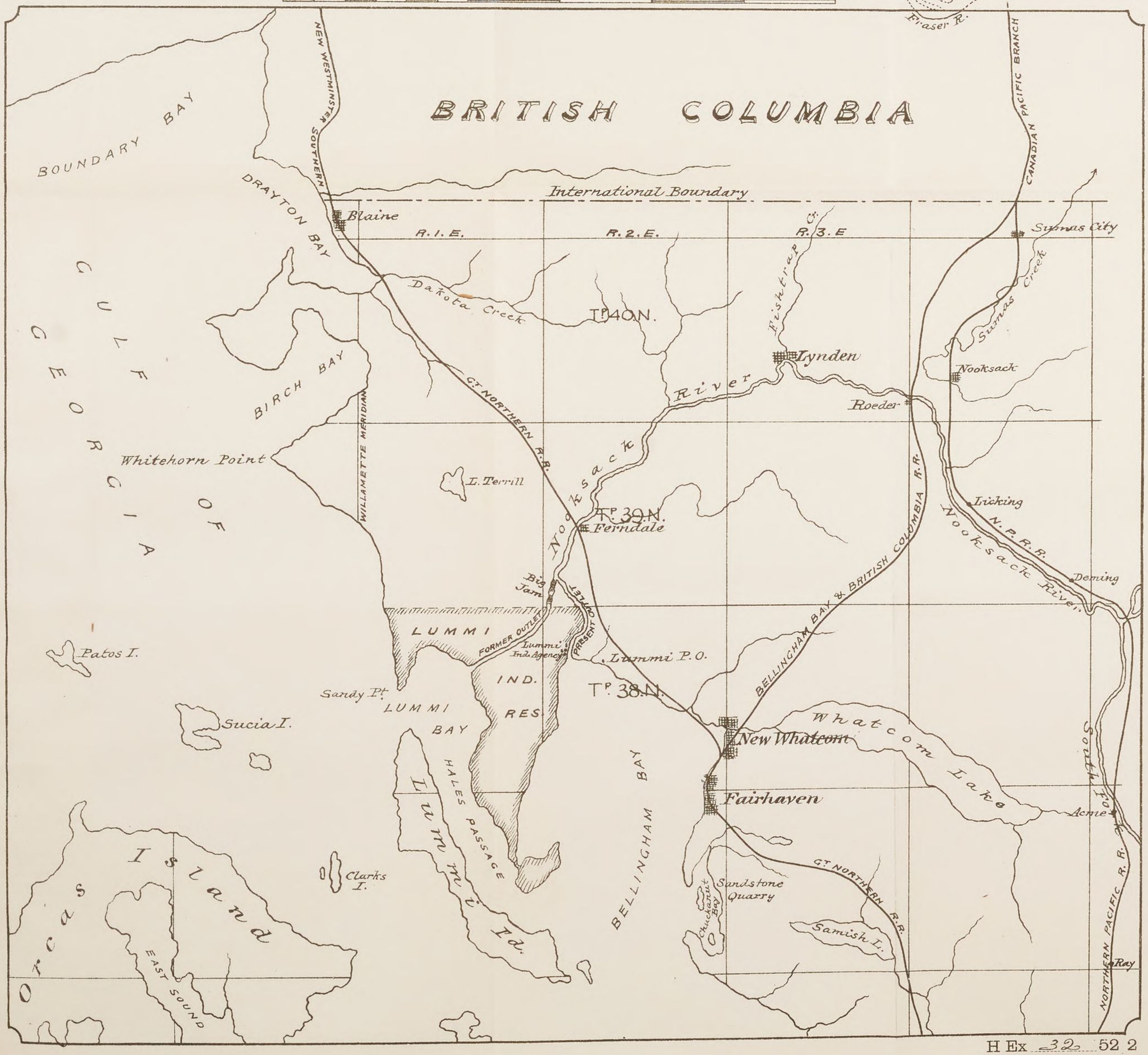
Vicinity Map

SHOWING PRESENT AND FORMER OUTLET OF THE NOOKSACK RIVER WASHINGTON

U.S. ENGINEER OFFICE
PORTLAND, OREGON
Oct. 1892

SCALE OF MILES
6 mls 3 0 3 6 9 12 mls



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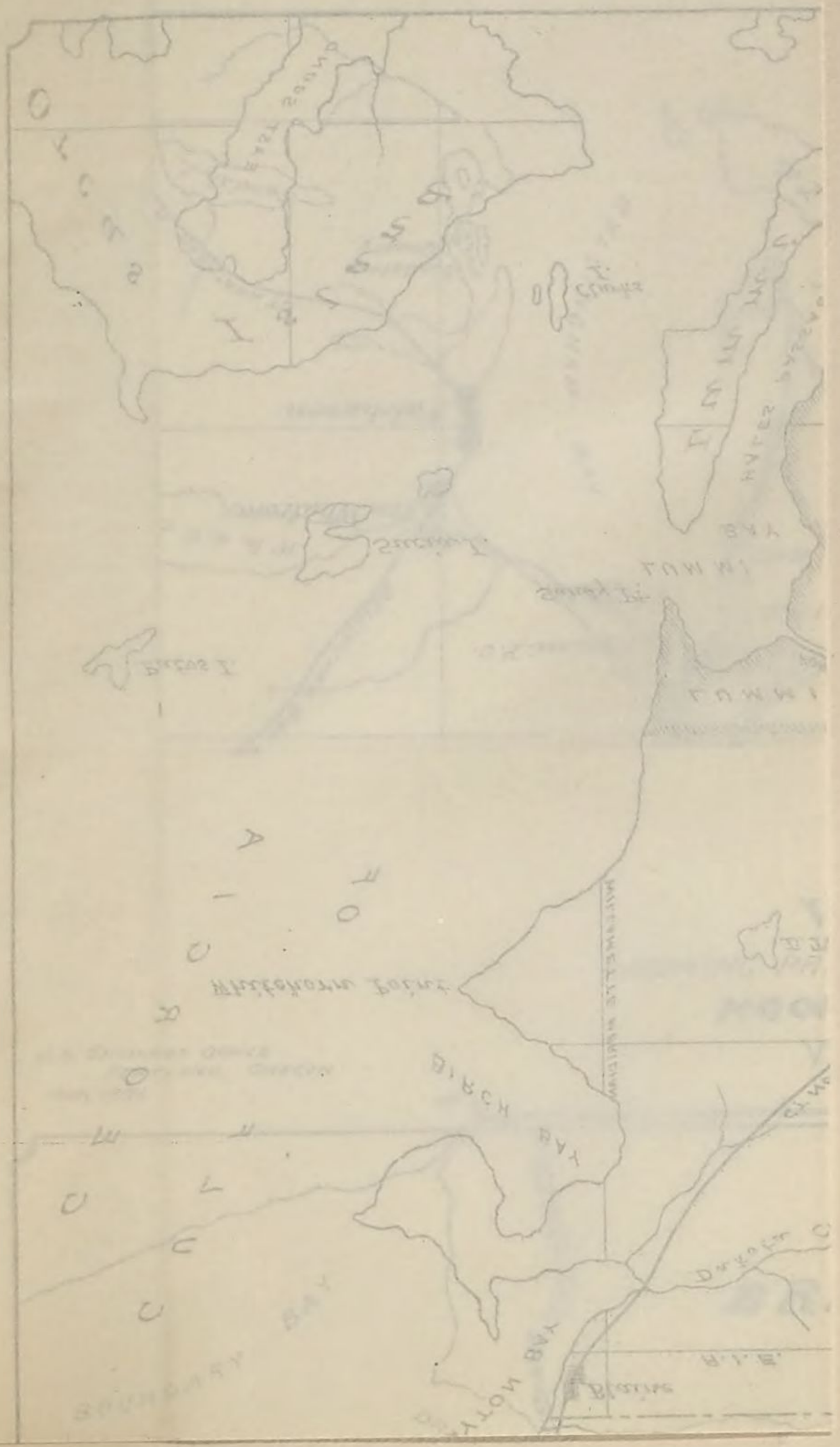

DUCK RIVER, TENNESSEE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Duck River, Tennessee.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. Henry M. Robert, Corps of Engineers, dated October 7, 1892, of a preliminary examination of Duck River, Tennessee, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated October 7, 1892, by Lieut. Col. Henry M. Robert, Corps of Engineers, of the results of a preliminary examination of Duck River, Tennessee, made under his direction to comply with provisions of the river and harbor act approved July 13, 1892.

I concur in the views of Lieut. Col. Robert that Duck River is worthy of improvement by the General Government. He states that an esti-

mate of cost of improvements proposed can be furnished without making a new survey.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF DUCK RIVER, TENNESSEE.

ENGINEER OFFICE, U. S. ARMY,
Nashville, Tenn., October 7, 1892.

GENERAL: I have the honor to submit herewith the following report of the preliminary examination of the Duck River, Tennessee, made under the provisions of the river and harbor act of July 13, 1892:

First Lieut. John Biddle, Corps of Engineers, was detailed to make the preliminary examination, and his report is appended hereto.

In 1879 Assistant Engineer D. L. Sublett, under the direction of Maj. W. R. King, made quite a thorough examination of the Duck River below Centerville, a distance of 68.5 miles. (See Report of Chief of Engineers, 1880, pages 1681–1687.) The fall in this distance was found to be 122 feet. Above Centerville the river has not been deemed capable of improvement at any justifiable cost. Below Centerville Maj. King estimated the river could be made navigable for half the year at an expense of $35,000, and when $13,000 were appropriated and expended he reported the river "in a fair navigable condition from Centerville to its mouth," and that "although the work contemplated in the existing project has not all been done, it is believed that the improvement accomplished will answer all the present needs of commerce, for several years at least." (See Report of Chief of Engineers, 1883, page 1498.)

Since December, 1882, no work has been done on the river, and consequently it is again badly obstructed with snags and overhanging trees.

Lieut. Biddle states that "the real demand for improvement is only for the last 20 miles of the river, up to the foot of Hackle Shoal, and especially from the mouth of Buffalo River down, 17 miles." He examined this portion of the river and is of opinion that the river is worthy of improvement from the foot of Hackle Shoal to its mouth.

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One general map of the river from Centerville to the Tennessee River and thirty-eight detailed sketches of the principal obstructions were made in connection with the examination of 1880, so that there is no need of a further survey at present.

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The Duck River runs through an exceedingly rich agricultural country, the resources of which are described in the report of the examination made in 1880. The commerce on the river is but slight, only one steamboat navigating it at present, and that only ascending the river 10 or 12 miles. The proposed improvement, it is thought, will develop this commerce.

Based on the aforementioned facts and statements, I am of opinion

that the Duck River, Tennessee, is worthy of improvement by the General Government.

Very respectfully, your obedient servant,

HENRY M. ROBERT,
Lieutenant-Colonel of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

REPORT OF LIEUTENANT JOHN BIDDLE, CORPS OF ENGINEERS.

SEPTEMBER 17, 1892.

COLONEL: I have the honor to submit the following report of a preliminary examination of the Duck River, Tennessee.

The Duck River rises in the plateau of the Cumberland Mountains, in the eastern part of middle Tennessee, flows somewhat north of west through the center of the State, and empties into the Tennessee River. The highest point to which it has been considered navigable is Centerville, 68.5 miles above the mouth.

The river was examined from Centerville down in 1879 (Report of Chief of Engineers, 1880, page 1681. Attention is invited to this report. The estimate for improvement was $35,118. Ten thousand dollars were appropriated and the river partially improved over the whole distance mentioned. Since 1883 no work has been done. The work in the upper part of the improved river, where most of the appropriation was expended, has not caused any development of navigation and is not likely to for the present.

To make the examination, I left Nashville September 14; proceeded to Johnsonville, which is the point of transfer to the railroad of the Duck River commerce. I obtained all the information possible from the owner of the only steamboat plying the river and from other inhabitants interested. Then, with a pilot, I went over the river from Hurricane Creek to the mouth, about 20 miles. A description of the river with its shoals, etc., is given in the report above mentioned.

The channel is shifting. The banks are cutting badly almost the whole length gone over. Trees are falling in the water at places, but as a rule where the bank is now cutting there are few trees. There are many snags.

The only steamboat navigating to-day is the *Wyandot*, 90 by 18 feet, and loading down to 2½ or 3 feet. During the last season she carried out 16,000 sacks of corn, 200,000 oak staves, and one load of hickory spokes. The first trip was made January 8 and the last May 2, 1892. Four thousand sacks of corn were carried out by another steamer. A number of lumber rafts are brought down the river. The *Wyandot* ascended the river only about 10 or 12 miles. Only boats carrying small loads can navigate the Duck River, and it does not pay them to go far up, even when possible, as it is very often.

The real demand for improvement is only for the last 20 miles of the river, up to the foot of Hackle Shoal, and especially from the mouth of Buffalo River down, 17 miles. The people along this part of the river, particularly those on the south bank, depend almost entirely on the river transportation. For about 4 or 5 miles up Buffalo River the farmers would probably make use of the Duck River boats if they ran more regularly. They now haul produce to the Tennessee River. It is believed among the inhabitants that more regular boat service would allow the development of other industries, as for staves, hoops, etc.

In view of these facts, I consider that the Duck River is worthy of improvement in its lower course. I do not think that any further survey is necessary. The work I would recommend would be simply the removal of snags and overhanging trees, commencing at the mouth of the river and continuing to foot of Hackle Shoals, about 20 miles. As the number of snags changes, any estimate as to the number would only be accurate during one season, and for that reason a previous survey seems superfluous. If this work causes a development of commerce, further improvements could then be made.

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Very respectfully, your obedient servant,

JOHN BIDDLE,
First Lieut. of Engineers.

Lieut. Col. HENRY M. ROBERT,
Corps of Engineers.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 34.

ST. JONES RIVER, DELAWARE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of St. Jones River, Delaware.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from W. F. Smith, United States agent, Major of Engineers, U. S. Army, retired, dated September 20, 1892, of a preliminary examination of mouth of St. Jones River, Delaware, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated September 20, 1892, by W. F. Smith, United States agent, Major of Engineers, U. S. Army, retired, of the results of a preliminary examination of mouth of St. Jones River, Delaware, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of the local engineer, concurred in by the Division Engineer and by this office, that the river is worthy of improvement by the General Government to the extent of redredging the mouth.

No survey will be required in order to submit project with estimate of cost of improvement proposed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF MOUTH OF ST. JONES RIVER, DELAWARE.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., September 20, 1892.

GENERAL: In compliance with Department letter of July 14, 1892, and the requirements of section 7 of the river and harbor act of July 13, 1892, I have the honor to submit the following report upon the preliminary examination of the mouth of St. Jones River, Delaware, made under my direction by Mr. A. Stierle, assistant engineer, a copy of whose report accompanies this.

The expenditure of a large sum of money in the construction of permanent protective works for a channel across the bar at the mouth of the river, such as is said to be desired by interested parties, does not seem warranted by the present and prospective demands of commerce.

A channel at the mouth of this stream, protected by banks of the material taken therefrom, was made in 1889 at a comparatively small cost, and was of great benefit to navigation. This channel, if it were cleared out periodically, would probably be the most economical plan of improvement for this locality, and to that extent I deem the mouth of the St. Jones River, Delaware, worthy of improvement by the General Government.

No survey would be required in order to submit a project, with estimate of cost of improvement, as the data obtainable from the maps and records on file in this office would suffice for that purpose.

Very respectfully, your obedient servant,

WM. F. SMITH,
United States Agent.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. William P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., September 22, 1892.

Respectfully submitted to the Chief of Engineers.

For the reasons set forth in the report of the local engineer, and considering the previous history of the river, I am of the opinion that it is "worthy of improvement by the General Government" to the extent of redredging the mouth.

WILLIAM P. CRAIGHILL,
Colonel, Corps of Engineers.

REPORT OF MR. A. STIERLE, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., August 30, 1892.

SIR: In compliance with your instructions I have the honor to submit the following report upon the preliminary examination of the mouth of St. Jones River, Delaware.

St. Jones River is a tributary of Delaware Bay, and was under improvement by the General Government between the years 1885 and 1890. The result of the improvement, which was reported as completed, was a 6-foot low-water channel nowhere less than 40 feet wide inside the river and 100 feet wide across the flats at the mouth, the total amount expended having been $40,000. The length of river improved, including the channel at the mouth, is about 22 miles.

The original project submitted in 1881 for the improvement of the mouth of the river was for a 3-foot low-water channel 100 feet wide and for a jetty 3,300 feet long at an estimated cost of $35,000. In 1889, when the improvements in the river

were nearly completed and the demand for a deeper entrance became urgent, a modification of the original project was proposed, recommending a change in the character of the jetty and substituting therefor banks of dredged material thrown up along each side of the contemplated cut. One of the main reasons tending towards a change in construction was that the small appropriation, $15,000, then available was not sufficient for a timber jetty of the required length.

The method proposed was considered at the outset an experiment only, and was selected as a basis upon which, in the future, more reliable and probably cheaper plans of improvement might be formed, doing away with costly timber jetties, whose construction is hardly warranted at streams having such limited commerce and navigation as the Delaware rivers generally have. Nearly all the rivers in Delaware had for years received the anomalous treatment of being improved from the mouth up, usually as far as navigation could be carried on at high water. Their entrances were left unimproved, rendering the improvements made within the river of little value, or "bottled up," as it were, for the time being. The St. Jones River was the first one, after being completely improved inside, that called for remedial steps to be taken at the mouth, and the above project was therefore submitted and subsequently approved.

On November 27, 1889, the improvements at the mouth were completed in accordance with the modified project. The actual amount of money expended in making the cut, which in the middle was 60 feet wide and 6 feet deep and on the sides 20 feet wide and 3 feet deep at mean low water, was $7,259.94, to which is to be added the cost of some piling, $1,280, making the total cost $8,539 94. The banks of dredged material thrown up on each side of the cut were of considerable height for about 1,500 feet out from the shore, and consisted for about one-third that distance of black marsh mud. Beyond that, as the excavations became less deep, they barely reached to high-water level, and the material of which they were made was sand, gravel, and large bowlders.

The condition of the channel after the lapse of nearly three years is as follows: The originally dredged depth of 6 feet in the center has maintained itself for a distance of 2,100 feet from the shore and has in some places increased to 7½ and 8 feet. The black mud bunks near the shore have settled to below high-water level and portions of the gravel banks farther out are only visible at low tide. The remnants of the dikes appear to be still able to confine the outgoing ebb to such a degree as to maintain the original depth and over, as stated. About 2,600 feet from the shore scarcely any trace of the banks and channel is left, the bottom having resumed its former depth, viz, 4 feet, and continues thence to deep water with its natural slope restored and unbroken. The cross-section of the channel where it exists has been reduced about one-third, probably by filling in on the sides from settlement or washing in of the banks. As a whole, however, the improvements made, primitive as they were in character, have stood the destructive forces of this exposed locality much better and longer than was expected.

It is desired by those interested in the improvement of the St. Jones River that the channel at the mouth be widened and deepened, where necessary, to its former depth of 6 feet at mean low water, and that it should be protected along the north side by permanent works. By reference to the last annual report upon the improvement of St. Jones River, page 1165, Report of the Chief of Engineers for 1890, it will be seen that there are only three vessels, one steamer and two schooners, trading regularly in the river. The total receipts and shipments that year were stated by the owners to have been 27,777 tons, valued at $1,201,565. It is said that the amount of freight carried by the steamer has doubled since a new entrance was made. It is not likely, however, that the commerce and navigation on this river will at any time exceed its present limits. With the prospective improvement of Murderkill River, which flows close by, and the almost certain establishment of a steamboat line in that river, shipments would rather decrease.

In view of these facts it would seem unwarranted to expend a large sum of money in constructing expensive protective works at the mouth of the river. Probably the cheapest plan would be to redredge periodically the channel already made, especially since the amount of dredging required would be small. Should, however, a jetty be decided upon and built, it would form, in conjunction with a similar structure at the mouth of the Murderkill River, which empties into the bay about one-half of a mile below, a safe inclosure of a large sheet of water that could be utilized as a harbor of refuge by the great number of small vessels engaged in fishing and oystering on the bay.

Whatever plan may be adopted, the estimate of the cost, with the project, can be made from the charts already available, and no survey is necessary.

Very respectfully, your obedient servant,

A. STIERLE,
Assistant Engineer.

Gen. WM. F. SMITH,
United States Agent.

O

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 35.

NEPONSET RIVER, MASSACHUSETTS.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Neponset River, Massachusetts.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. S. M. Mansfield, Corps of Engineers, dated October 31, 1892, of a preliminary examination of the Neponset River, Massachusetts, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated October 31, 1892, by Lieut. Col. S. M. Mansfield, Corps of Engineers, of the results of a preliminary examination of Neponset River, Massachusetts, made to comply with provisions of the river and harbor act approved July 13, 1892.

Lieut. Col. Mansfield states that in his opinion the river is worthy of improvement by the General Government, and he submits an estimate of $500 as the amount required to make the surveys necessary to the

preparation of plan and project with estimate of the improvement proposed.

I concur in his views.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF NEPONSET RIVER, MASSACHUSETTS.

UNITED STATES ENGINEER OFFICE,
Boston, Mass., October 31, 1892.

GENERAL: In accordance with the requirements of letter from your office of July 14, 1892, I have the honor to submit the following report upon the examination of Neponset River, Massachusetts, as provided in section 6 of the river and harbor act approved July 13, 1892:

The Neponset River flows chiefly through marshy banks from the head of navigation, at the dam at Lower Mills, to Dorchester Bay, a distance of about 2½ miles, and forms the dividing line between Dorchester (Boston) on the north and Milton and Quincy on the south.

The natural conditions of the region are most favorable for the establishment of manufactories and the handling of coal, lumber, stone, etc. United States harbor lines have been established between the mouth of the river at Commercial Point and the Neponset Avenue Bridge, and the bank on the northern side below the bridge is now occupied by the large Bay State Gas Company's works and several wharves, where is conducted a large business in coal and building materials.

The river is crossed by three bridges having convenient draw openings, and several coal and lumber docks are located on both banks at Lower Mills.

I am indebted to Messrs. A. and J. R. Churchill for statistics of the business of the river, and submit herewith a copy of their letter with a condensed tabular statement of the business of the river during the past ten years, which embraces only that done above the bridges.

There is also herewith copies of letters from the A. T. Stearns Lumber Company and Messrs. Pratt & Co., doing business below the bridges.

In my opinion the river is worthy of improvement by the General Government, and estimate that $500 will be required to enable me to make a survey and report, including a project with estimate of the cost of the proposed improvement.

Very respectfully, your obedient servant,

S. M. MANSFIELD,
Lieut. Col. of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

LETTER OF MESSRS. A. AND J. R. CHURCHILL.

BOSTON, *October 22, 1892.*

DEAR SIR: In the matter of the petition by O. S. Godfrey and Henry L. Pierce and others for the improvement of the Neponset River, Massachusetts, we desire to submit the inclosed tables showing a part of the business upon said river for the last 10 years; with also a comparative recapitulation thereof showing the increase through these years.

We call your attention especially to the following points:

The volume of business in coal has increased about 50 per cent. In lumber the volume of business has more than doubled. In brick it has trebled.

But more important is it still to notice th at the tonnage of vessels has been increasing from an average in 1882 of 389 to 423 (tons coal) in 1891. The largest in 1891 being 612.

It is indeed chiefly this consideration, beside the increase in business, that justifies the appeal of the petitioners, viz: that coal, etc., is being shipped and will continue to be shipped in larger and larger vessels necessitating, of course, deeper and wider draught.

It is desirable to-day to import coal in vessels of 800, 900 and even 1,000 tons burden.

The necessity of the future is still greater.

Meantime large business interests like the Walter Baker chocolate business and the grain business of Mr. Samuel Gannett are dependent upon the river and its accommodations for coal and grain; and others like the paper business of the Tileston and Hollingsworth corporation will be benefited by facilitating and increasing the transportation of coal by the river.

The petitioners hope for your favorable consideration of this matter, and we shall be glad to explain these figures to you, if necessary, at your convenience.

Yours, very truly,

A. & J. R. CHURCHILL,
Attorneys for Petitioners.

Lieut. Col. MANSFIELD,
U. S. Engineer, etc.

Yearly account.

RECAPITULATION.

Year.	Total of cargoes.	Coal.			Lumber.		Brick.	
		Number of cargoes.	Amount.	Average.	Number of cargoes.	Amount.	Number of cargoes.	Amount.
			Tons.	*Tons.*		*M feet.*		*M*
1882	34	23	8,948	389+	9	1,125+	2	119
1883	34	21	7,961	379+	11	1,127+	2	121+
1884	44	20	7,596	378+	21	1,729	3	180
1885	54	25	9,639	385+	22	2,133	7	441
1886	50	26	9,817	377+	22	2,264	2	122
1887	53	26	10,244	394	24	2,413	3	182
1888	71	38	14,650	385+	22	2,212	11	684
1889	66	41	16,303	397+	25	2,466	.....	.....
1890	60	33	13,943	422+	23	2,425	4	241
1891	66	35	15,825	423+	25	2,736	6	441
Total for 10 years...	532	288	114,926	.....	204	20,630+	40	2,531+

LETTER OF THE A. T. STEARNS LUMBER COMPANY.

NEPONSET, MASS., *October 29, 1892.*

DEAR SIR: Understanding that the matter of the improvement of the Neponset River has been referred to you, we write to urge your favorable report and recommendation of the improvement.

Our business has increased about tenfold during the last ten years, *i. e.*, from 1,200 to 12,000 tons in large vessels per year. During about two months of the year we have, on the average, one vessel per week and the vessels average from 400 to 800 tons each.

On the other hand the channel of the river has been filling up. The current fills up the bends of the river and at the seasons of low course tides our vessels are obliged to wait from a week to a fortnight before they can get up to our wharf.

We earnestly hope that the proposed improvement will be made.

THE A. T. STEARNS LUMBER CO.
By A. T. STEARNS, *President.*

Col. S. M. MANSFIELD,
United States Engineer.

LETTER OF PRATT & COMPANY.

NEPONSET, MASS., *October 27, 1892.*

DEAR SIR: Replying to your inquiry we beg to say that we have a wharf on Neponset River, where we carry on the lumber business having from thirty to forty vessels yearly. The deepening and widening the channel would be of great help to all doing business on the river. This improvement has been called for for many years and if the business now done is to be kept more water and wider channel must be had.

Yours truly,

PRATT & COMPANY.

Mr. J. M. B. CHURCHILL.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 36.

WILLAMETTE RIVER, OREGON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Willamette River, Oregon.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Thomas H. Handbury, Corps of Engineers, dated July 28, 1892, of a preliminary examination of Willamette River above Oregon City, Oregon, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated July 28, 1892, by Maj. Thos. H. Handbury, Corps of Engineers, of the results of preliminary examination of Willamette River above Oregon City, Oregon, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Maj. Handbury, concurred in by the Division Engineer and by this office, that this river is worthy of improvement by the General Government.

An estimate of $12,000 is submitted as the cost of the surveys necessary to prepare project and plan of improvement proposed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF WILLAMETTE RIVER, OREGON, ABOVE OREGON CITY.

UNITED STATES ENGINEER, OFFICE,
Portland, Oregon, July 28, 1892.

GENERAL: In compliance with instructions contained in your letter of July 14, 1892, assigning certain localities to me for preliminary examination, I have the honor to submit the following report regarding Willamette River, Oregon, above Oregon City:

The Willamette River rises in the Cascade Range of mountains and flowing northward through a wide and fertile valley empties into the Columbia River, 98 miles from the Pacific Ocean. It is navigated by ocean-going vessels for a distance of 20 miles above its mouth and by river steamers at certain seasons of the year for a distance of about 175 miles. It has a low-water discharge of 15,000 cubic feet per second and a discharge of approximately 400,000 cubic feet per second at extreme high water. It receives the drainage from the east slope of the Coast Range and the west slope of the Cascade.

Oregon City is located on the right bank of the river, 25 miles above its mouth. At this point the Willamette Falls are found. Here the river has a perpendicular fall of 40 feet at low water. This is overcome by a series of four locks built by the State of Oregon and finished in the early part of 1873. The lower portion of the river, for a distance of about 50 miles above Portland, is fairly well confined between high banks, but as we ascend we find the bottom lands more and more cut up with sloughs and high-water chutes. In the reach from Corvallis to Eugene, the highest point to which it has been proposed to improve the river for navigation purposes, this feature is very marked. This reach has a fall varying from 2 to 4 feet per mile. The slope of the river is more gentle in the lower reach.

Funds have been appropriated from time to time by the United States Government for improving navigation in this river since 1871, and have been expended in removing snags, rocks, overhanging trees, scraping sand bars, building wing dams and dams to close chutes, and other work of this character. This has given great relief and has very much improved the navigation of the river, but owing to the fact that the amount available at any one time was small in proportion to the work absolutely necessary to be done, to give any kind of relief to navigation, much of the work has been temporary in its character, and in many places renewed more than once.

The surplus products of the Willamette Valley are now very great, and are growing larger each year. The cost of transporting these to market is more or less affected by the condition of the river as regards navigability. The present system of improvement provides for navigation only during six or eight months of the year.

It would seem that the time has now arrived when an investigation should be made to determine whether or not some other and more per-

manent improvements should be made. The first step in this investigation will be to have a thorough survey of the river made from its probable head of navigation, say Eugene City, to Oregon City, a distance of about 150 miles. No survey of this reach that will give the data required has ever been made.

To make this survey and to collect the proper data for determining what is the best method for improving the river permanently would require $12,000. The matter is of sufficient importance to warrant this expenditure, and the river is worthy of further improvement by the General Government.

The following is given in report of the Portland Chamber of Commerce for calendar year 1891, as the amounts of principal articles of produce received by rail and river at that port from the Willamette Valley. The condition of the river determines to a certain extent the freight rate upon these products. The better the navigation and the longer it can be continued during the year the lower the freight rate:

Flour	barrels..	337,835
Wheat	centals..	1,026,531
Oats	do...	363,436
Barley	do...	10,771
Flaxseed	pounds..	59,475
Hops	do...	1,899,676
Wool	do...	702,818
Hides	do...	687,679

The aggregate tonnage of the river for the fiscal year ending June 30, 1892, as reported by the managers of the steamboats doing the business was 70,872 tons.

Very respectfully, your obedient servant,

THOS. H. HANDBURY,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., August 2, 1892.

Respectfully forwarded.

For reasons herein stated the Willamette River above Oregon City is regarded as worthy of improvement by the General Government.

The estimate of $12,000 for a complete survey of 150 miles of river is regarded as reasonable in amount.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 37.

LOCK AND DAM ON ALLEGHENY RIVER, PENNSYLVANIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination for for lock and dam on Allegheny River, near Tarentum, Pennsylvania.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Amos Stickney, Corps of Engineers, dated October 3, 1892, of a preliminay examination for lock and dam on Allegheny River, at or near Tarentum, Pa., made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the inclosed copy of report, dated October 3, 1892, by Maj. Amos Stickney, Corps of Engineers, of the results of a preliminary examination for lock and dam on Allegheny River, at or near Tarentum, Pa., made under his direction, to comply with provisions of the river and harbor act approved July 13, 1892.

Maj. Stickney is of opinion that the river at this point is worthy of improvement by the General Government, not only for the benefit of the immediate locality, but as a part of the system of slack-water navigation on the lower part of the river, and that $500 will be required to

make survey necessary to the preparation of plan and project, with estimate of cost of improvement proposed.

His opinion is concurred in by the Division Engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION FOR LOCK AND DAM ON ALLEGHENY RIVER, AT OR NEAR TARENTUM, PENNSYLVANIA.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, October 3, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination for lock and dam on Allegheny River, at or near Tarentum, Pa., assigned to my charge by letter from your office dated July 14, 1892. The examination was made by my assistant, Lieut. Harry F. Hodges, Corps of Engineers, a copy of whose report is transmitted herewith. The town of Tarentum is about 21 miles above the city of Allegheny. The surface of the river is 32 feet above the natural surface at the site of Herr Island Dam. This dam will raise the water surface about 10 feet, so there will be a difference of level between Herr Island and Tarentum of about 22 feet.

From reconnoissances and levelings that have been made, it seems probable that two dams will be needed to carry a 6-foot channel up to Creighton, about 2 miles below Tarentum, and that in continuation of a slack-water channel a dam should be placed at or near Creighton, which would form a pool extending above Tarentum. The location for such a dam can not be definitely fixed without a survey. The banks of the Allegheny River are built up for almost the entire distance from Pittsburg to Tarentum, and there are many manufacturing establishments located here, whose products would go to swell the commerce of the river if it were made navigable at all stages. The river at this point is deemed to be eminently worthy of improvement not only for the benefit of the immediate locality, but as a part of the system of slack-water navigation on the lower part of the river. It is estimated to cost $500 to make a survey with the view of submitting plan and estimate for the lock and dam.

Very respectfully, your obedient servant,

AMOS STICKNEY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., October 6, 1892.

Respectfully forwarded to the office of the Chief of Engineers.

I concur in the opinion of the district engineer, as herein expressed.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

REPORT OF LIEUT. HARRY F. HODGES, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, September 17, 1892.

SIR: I have the honor to make the following report of the preliminary examination for a lock and dam on the Allegheny River, at or near Tarentum, which was ordered by the river and harbor act of July 13, 1892.

The town of Tarentum lies on the Allegheny River, 21 miles above the city of Allegheny. Two railroads, the Allegheny Valley Railroad on the left bank and the West Pennsylvania Railroad on the right bank, follow the stream to points beyond the town. The outlying suburbs of Pittsburg and Allegheny City and the separate villages on the banks form a nearly continuous line, skirting the river as far as Tarentum. The accommodation trains on the West Pennsylvania Railroad have twenty-five stations in this reach of the stream.

A great number of industrial establishments of various kinds are located along the river for many miles and contribute their share to the great commerce of Pittsburg and Allegheny City. Statistics of the trade of the river are given in the Annual Report of the Chief of Engineers for 1890, page 2195. There can be no question that all of the cheaper and more bulky supplies and products of the factories would choose the river transportation, were it available.

As sources of information in regard to the topographical features of this portion of the stream, there are at hand reconnoissances made by Lieuts. Graham and Berrien in 1828, and by Lieut. F. A. Mahan, Corps of Engineers, in 1874; and a line of levels run over the lower 11 miles of the stream by Mr. J. W. Arras, assistant engineer in 1884. From these data, it appears that the water surface at Tarentum is 32 feet above the natural surface at the Herr Island Dam. The establishment of the Davis Island Dam and the Herr Island Dam will raise the water's surface in the pool of the latter 10 feet above the natural surface at that point. There will remain 22 feet of fall to be overcome. If the crest of the Herr Island Dam be placed at a level of 6 feet above the surface of the pool of the Davis Island Dam when full, a depth of 6 feet will be secured as far as the foot of Six Mile Rapids, about 4.3 miles above.

A fixed dam here with a lift of 6 feet would carry the depth of 6 feet to the foot of Nine Mile Rapids, or about 3.8 miles farther up. A fixed dam near the foot of Nine Mile Island with a lift of 10 feet will carry the required depth of 6 feet as far as Creighton, about 2 miles below Tarentum. A fixed dam, numbered 4 of the series, placed at Creighton will give a pool extending above Tarentum for a distance proportional to the lift. A 10-foot lift will give a depth of 6 feet for about 6 miles above Tarentum. The dam at Creighton, or Dam No. 4, is therefore the one to be located by this preliminary examination. Its position within a few hundred yards can be determined as above from the approximate differences in level as given by the reconnoissances already referred to. To fix the location exactly requires a more detailed knowledge of the foundations than can be obtained by a simple examination, as well as a more accurate line of levels than those at hand to cover a stretch of about 10 miles below Tarentum.

As the locality is undoubtedly worthy of improvement, and as the location of a dam at this place is in line with a project for the establishment of slack-water in the lower Allegheny, I would recommend that the levels run by Mr. Arras be extended to a point 6 miles above Tarentum, and that an accurate survey, with soundings and borings, be made of a stretch of the river one-half mile long below the old mill dam at Creighton. The estimated cost of this work is $500.

Very respectfully, your obedient servant,

HARRY F. HODGES,
First Lieut. of Engineers.

Maj. AMOS STICKNEY,
Corps of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 38.

SEAFORD CREEK, NEW YORK.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Seaford Creek, New York.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Capt. Thos. L. Casey, Corps of Engineers, dated September 22, 1892, of a preliminary examination of Seaford Creek, Long Island, New York, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report dated September 22, 1892, by Capt. Thos. L. Casey, Corps of Engineers, of the results of a preliminary examination of Seaford Creek, Long Island, New York, made to comply with requirements of the river and harbor act approved July 13, 1892.

I concur in the opinion expressed by Capt. Casey and by the Division

Engineer, that this creek is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF SEAFORD CREEK, LONG ISLAND, NEW YORK.

UNITED STATES ENGINEER OFFICE,
New York, September 22, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination of Seaford Creek, Long Island, as ordered by the river and harbor act of July 13, 1892.

Seaford is a scattering village, of a few hundred inhabitants, in the town of Hempstead, Long Island. It extends to the marsh back of Hempstead Bay; and from the village a shoal and narrow creek winds through the marsh to the more open waters of the bay. The contour of this section of Long Island is such that it divides into many small watersheds, each draining down to the salt marsh on the shore in an independent creek, which then cuts a channel for itself through the marsh to the open bay. These creeks are all too crooked and shallow to have much commercial value, but with the rise of the tide enable small craft to reach the upland at certain points along the shore.

During recent years the water supply department of Brooklyn has been extending its system through this section, drawing off the supply of fresh water from most of these creeks for miles. The result has been to raise the beds of the creeks and to diminish their usefulness. Seaford Creek has an advantage in location over most of them; it reaches the bay near the head of Great Island Channel, connecting with Jones Inlet after a course of about 6 miles, and with depths nowhere less than 5 feet mean low water, being thus readily navigable to vessels of about 150 tons. At the time of the examination a brick schooner of that capacity was lying at the head of the channel, lightering her cargo up the creek.

The creek proper is about three-fourths mile long, 30 feet to 50 feet wide, with a depth of less than 1 foot at mean low water; the mean rise and fall of the tide is about 3.5 feet. Between the mouth of the creek and the head of the channel, distant three-fourths mile, there are two reaches of bay water, 400 feet wide; a mud flat, barely covered at low water, through which winds a narrow drain from 1 to 2 feet deep.

At the head of the creek there are two coal yards and one lumber yard, dealing also in building material. A small amount of salt, hay, and manure is brought up the creek. One ten-ton sloop belongs in the creek and is apparently the largest boat that can reach the docks.

It is reported that 500 tons of coal, 100,000 brick, and 1,000,000 feet of lumber were handled at the docks last year, together with the catch of 20 oyster and clam boats having landings along the creek.

Large tracts in the village are being improved and divided up into building lots; at present its development is behind that of adjoining towns, where private parties have obtained possession of land along the creeks and improved them at their own expense.

* * * * * * *

It is not likely that the creek could be improved to such an extent as to draw off any considerable amount of freight from the railroads. The chief benefit would be as a convenience to small boating, adding to the oyster industry and drawing people to the town for the summer or for settlement. * * *

I have therefore to report that Seaford Creek is not worthy of improvement.

Respectfully submitted.

THOS. L. CASEY,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Henry L. Abbot, Corps of Engineers, Division Engineer, Northeast Division.)

[First indorsement.]

NORTHEAST DIVISION, ENGINEER OFFICE,
New York, September 23, 1892.

Respectfully forwarded to the Chief of Engineers.

For the reasons stated by Capt. Casey, I consider that Seaford Creek, Long Island, is not worthy of improvement by the General Government.

HENRY L. ABBOT,
Colonel of Engineers, Bvt. Brig. Gen., U. S. A.,
Engineer, Northeast Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 39.

UPPER COLUMBIA RIVER, WASHINGTON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Upper Columbia River, Washington.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Capt. Thos. W. Symons, Corps of Engineers, dated October 12, 1892, of a preliminary examination of Upper Columbia River, Washington, from the international boundary to Rock Island Rapids, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 12, 1892, by Capt. Thomas W. Symons, Corps of Engineers, of the results of a preliminary examination of Upper Columbia River, Washington, from the international boundary to Rock Island Rapids, made to comply with requirements of the river and harbor act approved July 13, 1892.

Capt. Symons states that, in his opinion, there are two portions of the river within the limits named that are worthy of improvement by the General Government—one is from Little Dalles to the international boundary line, a distance of 15 miles, and the other is from the head of Rock Island Rapids to Foster Creek Rapids, just above the mouth

of the Okanogan, a distance of 90 miles, and he submits an estimate of $4,000 as the amount required to make necessary surveys to prepare plan of improvement of the latter section.

His views are concurred in by the Division Engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF UPPER COLUMBIA RIVER, WASHINGTON, FROM THE INTERNATIONAL BOUNDARY TO ROCK ISLAND RAPIDS.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, October 12, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of "Upper Columbia River, Washington, from the international boundary to Rock Island Rapids."

It was not found necessary at the present time to make an actual examination of the entire portion of the river named, either in person or by an assistant, for the reason that in 1881 I made a personal examination and reconnoissance survey of the river, and during the past two years the river from the international boundary line to the mouth of the Okanogan has been carefully surveyed under the direction of this office by Mr. William Cuthbert, who also traversed the remaining portion of the river from the mouth of the Okanogan to Rock Island Rapids. The maps and a full report on this portion of the river will be sent to you in a short time. I did, however, make a personal examination of that portion of the river at present navigated from the international boundary line to the Little Dalles.

DESCRIPTION.

The Columbia River from the international boundary line to Rock Island Rapids is 294 miles in length. It has an average fall of about 2½ feet per mile, a low-water discharge of 50,000 cubic feet per second, and a high-water discharge of 300,000 cubic feet per second. The average velocity of the current is 3½ miles per hour; in many places this increases to 8, 10, 12, and even 15 miles per hour.

Throughout the river, as far as ascertained, there is generally ample depth of water for purposes of navigation.

The portion of the Columbia from the international boundary line to the mouth of the Spokane River passes through a mountainous, wooded country with, however, much fine agricultural land. From the Spokane to Rock Island Rapids the timber becomes less in quantity. This portion of the river incloses, on the north and west, the famous "Big Bend" country, one of the choicest agricultural sections of Washington, and of which Davenport, Wilbur, Almira, Coulee City, and Waterville are the principal cities. The Okanogan, coming in from the north, has in its vicinity mines of gold, silver, and lead of great extent and richness, besides large areas of agricultural and grazing lands. At the outlet of Lake Chelan, a thriving town has been started; there are steamers running on the lake, and the country about the lake is rapidly settling up. Wenatchee, at the mouth of the Wenatchee River, is becoming a place of importance, and the population of the "Vale of Wenatchee" is rapidly increasing.

RAILROADS.

Two railroads reach the Columbia in the portion of its course under consideration. One, the Spokane and Northern, starts at Spokane and runs northerly, striking the river at Kettle Falls, and then running along the left bank of the river as far as Little Dalles.

The second, the Great Northern Railroad, runs from Spokane westerly, reaching the Columbia at Rock Island Rapids, thence running northerly along and across the Columbia and up the Wenatchee River and over the Cascade Mountains to Puget Sound. This road is not yet completed, but work is progressing as rapidly as possible, and it is expected that it will be completed within a year.

NAVIGATION.

The present navigation of the Columbia River, in the section under consideration, is limited to two stretches. First, from the northern terminus of the Spokane and Northern to the international boundary line; and, second, from the head of Rock Island Rapids to the mouth of the Okanogan and vicinity. From the Little Dalles there is a line of steamers running up the Columbia to Revelstoke, on the Canadian Pacific Railroad, and connecting at Robson with the railroad up the Kootenai River to Nelson, on Kootenai Lake. Between the mouth of the Okanogan and Rock Island Rapids a steamer is plying. This is a part of a route from Ellensburg, on the Northern Pacific, via wagon road, to the Columbia above Rock Island, thence by river to the mouth of the Okanogan. As soon as the Great Northern is completed and in operation this portion of the river will furnish the commercial highway from and into the great Okanogan mining, agricultural, and grazing region, and will furnish a needed outlet for a large part of the Big Bend country.

It is my opinion that the Columbia River from the international boundary line to Rock Island Rapids is worthy of improvement to a limited extent. A pretty thorough knowledge of the river and a careful study of all transportation and economic questions connected with it convince me that this river can not, at least in the near future, become a through highway of commerce upon which will be transported the products from and supplies to the region drained by it. There are too many things against its ever occupying this high position in the world of commerce. These may be summarized as the obstructions, such as rapids and falls of greater or less magnitude, which can only be passed by expensive canals and locks, boat railways, or portage roads; the many lesser rapids, where auxiliary power or lining would be necessary; the generally swift currents, requiring a large expenditure of fuel to surmount, combined with a lack of fuel and high cost of the same; the economic character of the country in the immediate vicinity of the river, which is of such a nature as to furnish or promise but little local business; the topographical character of the river and its immediate vicinity, which will render it difficult to get to and from the fertile regions above it, for it must be remembered that the Columbia flows through a great cañon or depression from 2,000 to 3,000 feet and more below the general level of the country drained by it, and the dangers which boats must ever take in navigating many portions of its course. The function of the Columbia in this upper portion of its course in the commercial world is and will be, at any rate for many years, that certain portions of it will be navigated as feeders to railroads. As such, cer-

tain portions of the river will be of great value, and can well receive the attention of the General Government.

There are, as previously stated, two portions of the river that are navigated now, and upon which it is a matter of little doubt that the navigation will greatly increase in the near future. One is from Little Dalles to the international boundary line, a distance of 15 miles, and the other is from the head of Rock Island Rapids to Foster Creek Rapids, just above the mouth of the Okanogan, a distance of 90 miles. These are the sections of the river which are recommended as at present worthy of improvement by the General Government. For the first-named portion no further survey is necessary, it having been included in the survey made by Mr. Cuthbert. This survey shows that at three places only is there need of work: At Two Mile, Steamboat, and Sheep Creek Rapids.

* * * * * * *

From the mouth of the Okanogan to Rock Island Rapids a survey is needed to determine the extent of obstruction and character of the river. To make this survey on the same plan as that of the river above will require an expenditure of $4,000.

The portion of the Columbia from Little Dalles to the international boundary line is a link in the line of communication between the Canadian Pacific Railroad at Revelstoke and the Great Northern, Northern Pacific, and Union Pacific Railroads at Spokane, and incidentally by means of the Columbia and Kootenai Railroad with the Kootenai Lake and River and the Great Northern Railroad at Bonners Ferry.

It is a portion of the route for the transportation of supplies into and ores from the great and rapidly developing mining centers of the Upper Columbia, Slocan, and Kootenai regions.

Upon the portion of the Columbia in British Columbia, to the south of Revelstoke, the Dominion Government last year expended $19,000 in improving the river. This was mainly expended at two points, one just below Revelstoke and the other at the Kootenai Rapids.

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., October 17, 1892.

Respectfully forwarded.

For reasons herein given the Columbia River, from the boundary to Rock Island Rapids, is considered to be worthy of improvement by the General Government over two stretches: namely, that extending from the boundary to Little Dalles, a distance of 15 miles; and, secondly, that from Rock Island Rapids to Foster Creek Rapids, a distance of about 90 miles.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 40.

CHELSEA RIVER, MASSACHUSETTS.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Chelsea River, Massachusetts.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. S. M. Mansfield, Corps of Engineers, dated October 26, 1892, of a preliminary examination of Chelsea River, Massachusetts, from Grand Junction Railroad Bridge to Boston and Maine (Eastern Division) Railroad Bridge, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, dated October 26, 1892, by Lieut. Col. S. M. Mansfield, Corps of Engineers, of the results of preliminary examination of Chelsea River, Massachusetts, from Grand Junction Railroad Bridge to Boston and Maine (Eastern Division) Railroad Bridge, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Mansfield, concurred in by this office, that the river is worthy of improvement by the General Government.

It is estimated that $400 will be required to make a survey and report, including project, with estimate of cost of the improvement proposed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF CHELSEA RIVER, MASSACHUSETTS, FROM GRAND JUNCTION RAILROAD BRIDGE TO BOSTON AND MAINE (EASTERN DIVISION) RAILROAD BRIDGE.

UNITED STATES ENGINEER OFFICE,
Boston, Mass., October 26, 1892.

GENERAL: Pursuant to the requirements of letter from your office of July 14, 1892, I have the honor to submit the following report upon the examination of Chelsea River, from Grand Junction Railroad Bridge to Boston and Maine (Eastern Division) Railroad Bridge, as provided in section 6 of the river and harbor act approved July 13, 1892.

Chelsea River empties into Boston Harbor, near the mouth of the Mystic River, and carries 20 or more feet of water at low tide to Grand Junction Bridge, and for a short distance above, within the limits of this examination, when it shoals rapidly to the head of the stream, where it is crossed by the Boston and Maine (Eastern Division) Railroad Bridge. The distance between the bridges is, by the thread of the river, about 7,500 feet, and its width for about three-fourths of the length, 300 feet, when it narrows to 100 feet beyond.

The Chelsea side of this stream is admirably adapted to manufacturing purposes, and harbor lines are laid down there in recognition of this fitness for manufacturing and commercial uses.

No wharves are to be found there now save in the small inlet of Bass Creek, but the large manufacturing establishments of the Suffolk Cordage Company, the Revere Rubber Company, and Forbes Lithograph Manufacturing Company are located on this shore, and their facilities for transportation would be greatly advanced by a little improvement of the navigable capacity of the river.

The town of Revere borders the river at its upper end, and a wharf has recently been constructed there for handling coal and building materials, affording the only water communication that Revere possesses.

The eastern shore is limited by the Eastern Railroad, along which the harbor line is established, and presents no desirable water front.

The projectors of the improvement desire a channel of greater capacity in width and depth, and I think the demand is a reasonable one.

I submit copies of letters in relation thereto, embracing all the information attainable as to the present and prospective demands of commerce, and for the reasons stated will say that the river is worthy of improvement by the General Government.

It will require $400 to enable me to make a survey and report, including a project, with estimate of the cost of the improvement proposed.

Very respectfully, your obedient servant,

S. M. MANSFIELD,
Lieut. Col. of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

LETTER OF REVERE RUBBER COMPANY.

BOSTON, MASS., *October 8, 1892.*

DEAR SIR: Yours of the 29th ultimo is received, and in reply would say that the use of that part of Chelsea Creek referred to as a means of transportation is at present wholly used by parties doing business in Revere. A small expenditure would doubtless be of considerable help to them. What business would be developed by a larger expenditure we are not prepared to answer, but we regard this waterway as of great importance, and any widening or deepening of the same, besides the business it may encourage, will be of great benefit to the whole of Boston Harbor.

Yours, truly,

HENRY C. MORSE,
Treasurer.

Lieut. Col. S. M. MANSFIELD,
Corps of Engineers, U. S. A.

LETTER OF BOARD OF SELECTMEN, TOWN OF REVERE.

REVERE, MASS., *October 12, 1892.*

DEAR SIR: In the matter of the proposed improvement of Chelsea Creek or River (so called), as petitioned for by George F. Proctor and others, we desire to express our interest in the project, believing that if carried out the result would be a benefit to our town to no slight extent viewed in a commercial light.

At the present time there is literally no landing place or wharf within the town limits, making it imperative that merchandise of all kinds be brought by "rail" or hauled by team from tide water at Chelsea. We believe that coal, lumber, lime, cement, and cord wood are goods that would be shipped here in no inconsiderable quantities if wharfage facilities are afforded.

Yours, respectfully,

ALBERT S. BURNHAM,
ARTHUR B. CURTIS,
SAMUEL S. PRATT,
Selectmen, Town of Revere.

Lieut. Col. S. M. MANSFIELD.

LETTER OF FORBES LITHOGRAPH MANUFACTURING COMPANY.

BOSTON, *October 14, 1892.*

DEAR SIR: I desire to add a word to the communications that are being sent to you by parties and corporations having their manufacturing establishments on the Chelsea River above Grand Junction bridge. Our company employs nearly 500 hands and we are transporting more than 1,000 tons of material per year under the present embarrassed conditions, and I am also of the opinion that the proposed improvements would lead to a marked and continuous increase as well as an extensive development of the property on the river, which is so well located for manufacturing purposes.

Yours, respectfully,

W. W. FORBES,
Treasurer.

Lieut. Col. S. M. MANSFIELD,
Corps of Engineers, U. S. A.

LETTER OF MR. GEORGE F. PROCTOR.

REVERE, MASS., *October 15, 1892.*

DEAR SIR: In reply to yours of September 28, concerning the wishes of the petitioners for improvement of Chelsea River, the present amount of commerce, etc., I will state that the petitioners desire the proposed improvement to enable them to receive their various kinds of merchandise by the cheapest means of transportation, and do believe that a depth of water, as petitioned for, will enable the manufacturing establishments to obtain their fuel at the lowest figure by water shipments; the citizens of Revere their building materials, now received by rail at high rates, the town having doubled its population within ten years, showing the demand for building materials alone. The item of fuel is also to be considered, the town using from

8,000 to 10,000 tons of coal per annum. This is all brought to town either by rail from tide water at Mystic River at a rate which is the same as could be obtained recently by vessel from New York to Boston or by team from tide water at Chelsea.

The article of cord wood is in great demand for manufacturing as well as for domestic purposes, and upwards of 2,000 cords are consumed annually, largely Nova Scotia wood, and, with the exception of a cargo just landed at our own wharf, has been hauled by team from Chelsea and East Boston wharves. An instance of high railroad freight rates is shown on the item of iron water-pipe, the rate from Boston to Revere being double that by water from New Jersey ports to Boston.

The article of baled hay, of which Revere probably uses 1,000 tons, could be landed by water at a saving of about one dollar per ton.

We believe that 18 feet of water at mean high tide is necessary to ship our fuel, lumber, and all building materials, lighter draft vessels being obtainable only at higher rates of freight; in fact, at the present time, we find it hard to charter coal vessels of moderate tonnage on 12 feet draft.

With the large frontage on the Chelsea side of the river awaiting development for wharf purposes, the plants of the Revere Rubber Company and the Forbes Lithograph Manufacturing Company, both of which you probably have heard from, the town of Revere with its rapid growth, all tend to show the need of good tide-water facilities, and we do believe that ten years from to-day, if the proposed improvement is made, a business on Chelsea River will have developed which will equal that of much larger places, and will prove conclusively to our Government that such an expenditure would not be thrown away.

I inclose a letter from our board of selectmen and would be glad to give you any further information which you may desire.

I remain, very respectfully, yours,

GEORGE F. PROCTOR.

Lieut. Col. S. M. MANSFIELD.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 41.

DEEP-WATER HARBOR AT SAN PEDRO BAY.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

With maps, etc., the report of a Board of Engineer Officers of the U. S. Army as to the proposed deep-water harbor at San Pedro or Santa Monica bays.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 6, 1892.

SIR: In compliance with the act of Congress entitled "An act making appropriations for the construction, repair, and preservation of certain public works or rivers and harbors, and for other purposes," approved July 13, 1892 (Pamphlet Laws, Fifty-second Congress, first session, page 88), I have the honor to transmit herewith, accompanied by appendixes and maps, the report of a Board of Enginer Officers of the U. S. Army appointed "to make a careful and critical examination for a proposed deep-water harbor at San Pedro or Santa Monica bays" on the Pacific slope.

Very respectfully,

S. B. ELKINS.
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., November 1, 1892.

SIR: The river and harbor act approved July 13, 1892, provides as follows:

The Secretary of War is hereby authorized and directed to appoint a board of five engineer officers of the United States Army, whose duty it shall be to make a careful and critical examination for a proposed deep-water harbor at San Pedro or Santa Monica bays, and to report as to which is the more eligible location for such harbor in depth, width, and capacity to accommodate the largest ocean-going vessels and the commercial and naval necessities of the country, together with an estimate of the

cost. Said board of engineers shall report the result of its investigations to the Secretary of War on or before the first of November, eighteen hundred and ninety-two.

The report, dated October 27, 1892, by the Board of Engineers constituted by your authority under the item of the act above quoted, has just reached this office, and is herewith submitted, as required by the terms of the law.

The president of the Board, Col. Craighill, states that the maps and appendixes to accompany the report are not ready to be submitted; but he promises that they will be sent forward as soon as possible.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

REPORT OF BOARD OF ENGINEER OFFICERS ON DEEP-WATER HARBOR AT SAN PEDRO OR SANTA MONICA BAYS, CALIFORNIA.

NEW YORK CITY, *October 27, 1892.*

GENERAL: The Board of Engineers appointed by Special Orders No. 33, Headquarters, Corps of Engineers, dated Washington, D. C., July 27, 1892, "to consider and report upon the proposed deep-water harbor at San Pedro or Santa Monica bays," as required by the river and harbor act of July 13, 1892, has the honor to submit the following report:

The law provides as follows:

The Secretary of War is hereby authorized and directed to appoint a board of five engineer officers of the United States Army, whose duty it shall be to make a careful and critical examination for a proposed deep-water harbor at San Pedro or Santa Monica bays, and to report as to which is the more eligible location for such harbor in depth, width, and capacity to accommodate the largest ocean-going vessels and the commercial and naval necessities of the country, together with an estimate of the cost. Said board of engineers shall report the result of its investigations to the Secretary of War on or before the first of November, eighteen hundred and ninety-two; and ten thousand dollars, or so much thereof as may be necessary, are hereby appropriated for said purpose.

The Board convened at San Francisco, Cal., on September 2, 1892, and examined the maps, reports, and other information relating to the subjects of inquiry on file in the United States Engineer offices at that place.

The Board then proceeded to Redondo Beach, which is situated near the southern end of Santa Monica Bay and in the vicinity of San Pedro Bay.

During the week ending September 10, 1892, the Board visited and examined the coast from the mouth of the San Gabriel River in San Pedro Bay to the Cañada Temescal in Santa Monica Bay, making special examinations of the harbor at Wilmington, the wharf at Redondo Beach, the original wharf at Santa Monica, and the new wharf of the Southern Pacific Railway Company now in process of construction north of Santa Monica Cañon. The Board also visited and examined localities in Cold Water Cañon where it was reported that quarries might be opened for the convenient and economical supply of stone for harbor construction.

On September 8, 1892, the Board gave a public hearing at the rooms

of the Chamber of Commerce in the city of Los Angeles at which a full expression of the views of all persons interested in the location of the proposed harbor was invited. The hearing was previously advertised in the local newspapers. On September 9, 1892, a special hearing was given to the engineers and other representatives of railway companies having interests in this vicinity. After a preliminary discussion of the subject under investigation, the board then adjourned to afford the individual members opportunity to give thorough consideration to the information obtained.

At the final session of the Board, which was begun in New York on October 25, 1892, this report was unanimously adopted:

COMMERCIAL AND NAVAL RELATIONS.

Santa Monica and San Pedro bays are situated upon the southern coast of California, between Point Dume and Point Lasuen. Santa Monica Bay extends from Point Dume to Point Vincente, and San Pedro Bay from Point Fermin to Point Lasuen. Back of this portion of the coast lie the counties of Los Angeles, Orange, and San Bernardino, which include the most productive and valuable territory in Southern California. The good lands in this region are situated generally close together and are easily accessible by land or sea. The facilities for irrigation are excellent and capable of great future extension. Owing to these advantages this territory is now, and doubtless will continue to be, the most important in the southern part of the State.

The commercial center of this region is the city of Los Angeles, which is situated about 13 miles from the nearest point on the coast. This city has grown with great rapidity, and has now a population of about 55,000. It is not only the principal city of the most productive district, but it is also the point of intersection of all the southern transcontinental and coastwise railway lines, and it will probably always be the most important city of southern California.

Owing to the topography of the country the natural ocean outlet of this region must be found between Points Dume and San Juan Capistrano; in other words, either in Santa Monica or San Pedro Bay. High mountain ranges, requiring heavy grades expensive to work, obstruct its communication with the port of San Diego, the only harbor on the south; and on the north the approaches to the coast are difficult, and there is no good harbor nearer than San Francisco Bay.

The principal products of this region are oranges and other fruits, wines and brandies, vegetables and grain. By far the larger part of these products is transported by the railways, the most advantageous and extensive markets being found in our own country. The only shipping ports for the part transported by water along the coast or to foreign countries are the harbor of Wilmington, situated at the northwestern end of San Pedro Bay, and the wharf at Redondo Beach, near the southern extremity of Santa Monica Bay. The Southern Pacific Company is now constructing an extensive wharf a short distance west of Santa Monica Cañon.

A general idea of the volume and character of the seaport business transacted at the present time may be formed from the following statistics, which relate to the year 1891. The number of coasting vessels which arrived during the year at Wilmington was 546, and at Redondo 255, and 41 vessels entered from foreign ports, making a total of 842 vessels. The principal export was wheat, the value of which was about

$40,000. The principal imports from foreign countries were coal, cement, and glass, the value of which was about $370,000. The value of the coal, most of which comes from Australia, was about $340,000. The imports in coasting vessels at Wilmington were 53,643,060 feet of lumber, 342,525 railway ties, and 14,358 tons of other articles; and at Redondo 20,689,464 feet of lumber and 29,179 tons of other articles.

It will appear from the above that the maritime exports of this region are at present insignificant, and that the imports from foreign ports, with the exception of coal, are of little consequence. The coastwise traffic, consisting principally of the importation of lumber, forms by far the most important part of the seaport business. The existing harbor facilities for the accommodation of this traffic consist of the port of Wilmington, the improved channel of which has a minimum depth of about 14 feet at mean low water, and the port of Redondo, at whose wharf, it is stated, vessels of the largest draft can lie with perfect safety, except for a very few days during the year. These landing facilities will be considered more fully in a subsequent part of this report. They are now briefly mentioned to show that the present demands of commerce, either for safety or convenience, do not appear to be such as would justify the construction of a deep-water harbor at great expense by the General Government.

By far the most important aspect of this subject, however, is its relation to the probable future development of the deep-sea commerce of the country. Heretofore the Asiatic trade has naturally gone to San Francisco, but it has been pointed out that the construction of the Canadian and Northern Pacific railroads has introduced two competitors for the overland transportation of the Asiatic commerce. Two through lines, the Southern Pacific and the Santa Fé systems, cross the continent from Los Angeles at much lower elevations than the northern lines, and also connect the Pacific with the Gulf of Mexico, and their operation is never obstructed by snow or ice. If a safe, accessible, and convenient harbor for deep-draft vessels existed on the southern coast these would appear to be the most favorable lines for the transportation of Asiatic and Australian commerce.

Should the Nicaragua Canal be completed the importance of the proposed harbor will become still greater. At the present time the most convenient course for sailing vessels coming around the Horn is to go out into the mid-Pacific and strike the trade winds to make the port of San Francisco. With the completion of the canal, commerce will be principally transported by steam vessels of moderate draft, which will move north along the coast and seek the nearest favorable and convenient port from which their freight can reach its market.

A deep-water harbor on the southern coast would thus receive the Asiatic and Australian freights for shipment over the most favorable transcontinental lines, accommodate a large part of the commerce passing through the Nicaragua Canal which now goes around the Horn, and finally furnish a port of shipment and supply not only for the productive territory in its immediate vicinity, but also for the great interior plateau reached by the southern railways beyond the mountain ranges. Considering, therefore, the probable needs of commerce in the near future, the Board is of the opinion that the proposed deep-water harbor is of high national importance and well worthy of construction by the General Government.

As regards the naval necessities of the country, it must be remarked that the harbor of San Diego is in location, accessibility, anchorage area, and defensive capacity better adapted to the purposes of a naval

rendezvous than any artificial deep-water harbor which can be constructed on this part of the coast. This harbor is near the Mexican frontier. The entrance is easily approached, and there are no outlying dangers. The minimum depth over the bar at mean low water is now 21 feet, which is to be increased to 26 feet under the adopted project for improvement, and the deep-water anchorage within covers an area of about 933 acres. As already indicated, this harbor does not fully satisfy the conditions of a great commercial port for the service of the country northwest of it, owing to unfavorable topographical conditions; but these conditions do not affect its superiority for naval purposes.

Nevertheless, Santa Monica and San Pedro bays furnish convenient landing places from which an enemy could readily conduct hostile operations against southern California, and it is therefore of the highest importance that the location of a harbor in this vicinity should be selected with special reference to its capacity for easy and efficient defense.

The conclusions of the Board, with reference to the relations of the proposed deep-water harbor to the commercial and naval necessities of the country, may be summarized as follows: The present interests of the coastwise and foreign transportation of southern California do not justify the construction of such a harbor, although they would doubtless be benefited thereby; but the prospective requirements of foreign commerce amply warrant the Government in its establishment, even at large expense. The location of such a harbor should be determined principally with reference to the convenient and ample accommodation of deep-draft vessels engaged in foreign trade and the requirements of ships of war, the needs of the coastwise navigation and the cost of construction being considered matters of secondary importance.

In the following descriptions of the topography, hydrography, and meteorological conditions of Santa Monica and San Pedro bays, free use has been made of the information contained in the report of a Board of Engineer Officers appointed under the provisions of the river and harbor act of September 19, 1890, to examine the Pacific coast between Points Dume and Capistrano, with a view of determining the best location for a deep-water harbor, dated December 8, 1891. Valuable information has also been obtained from Prof. George Davidson's admirable Coast Pilot, published by the Coast and Geodetic Survey, from interviews and correspondence with experienced navigators, and from personal observation.

TOPOGRAPHY.

The general trend of the shore line of Santa Monica Bay from Point Dume to Santa Monica is eastward. The foreshore is abrupt and rocky, being formed by the foothills of the adjacent Cuhuenga Mountains. West of the village of Santa Monica the shore is a plateau about 80 feet above the level of the sea, its face being nearly vertical and covered in front by a sand beach. The general trend of the shore line from Santa Monica around to Rocky Point, which forms the southern terminus of the bay, is about south 25° west. About 2 miles to the eastward low land, inclosing a lagoon called La Ballona, extends for 2 or 3 miles, separated from the ocean by sand dunes and a fine beach. Thence to Malaga Cove, a further distance of about 11 miles, the foreshore consists of sand dunes, the plateau being retired. Extending from Malaga Cove for a distance of about 12 miles around by Rocky Point and Point Vincente to Point Fermin, the shore is a line of bold cliffs,

reaching an elevation of 200 feet, and marked by many cuts and sharp ravines.

Between Points Fermin and Lasuen, which form the limits of San Pedro Bay, the general direction of the shore line is about south 62° west. The most marked characteristic of the shore is the occurrence of shallow lagoons close to the ocean and separated from it by thin lines of sand beach, a feature which is also exhibited, but with less frequency, along the shore of Santa Monica Bay. The most important of these lagoons lies close under Point Fermin and is known as Wilmington Harbor.

HYDROGRAPHY.

Throughout Santa Monica Bay the depth is very irregular. Abreast of Santa Monica village there is a depth of 40 fathoms 4 miles offshore, but off the beach, south of La Ballona, a submarine plateau 4 miles wide extends for 8 miles to the southwest, with depths very uniformly increasing to 40 fathoms, the bottom being gray sand, mud, and gravel. Westward of this plateau, towards Point Dume, the depth increases rapidly to nearly 300 fathoms, carrying 200 fathoms within a mile south of the point, and the bottom is muddy. On the east of this plateau, towards Point Vincente, there is a remarkable submarine valley only 1 mile wide between the 100-fathom curves, carrying from 280 to 100 fathoms to within 1 and 1½ miles of the beach, with a muddy bottom. The eastern side of this valley is very steep, dropping from 40 to 200 fathoms in three-eighths of a mile. The western side is more sloping, but the slope from 100 fathoms is very sharp. It has been named by Prof. Davidson the Vincente Submarine Valley. Near the southern end of the bay a well-marked current running to the northward and westward has been observed. The bay and its approaches are free from hidden dangers. A small area of rocky bottom is indicated on the surface by the presence of kelp. The whole area of San Pedro Bay is a plateau the limits of which have not been determined. Within a line drawn from Point Fermin to Point Lasuen the deepest water is about 15 fathoms, with 4 or 5 fathoms half a mile from the shore. The slope from the shore seaward is fairly uniform, the bottom being fine gray sand with occasional patches of gravel and mud, except off San Pedro, where it is blue mud. Areas of rocky bottom exist in the present anchorage of San Pedro, and rocky bottom about Point Fermin is indicated by the presence of kelp.

The line of 10 fathoms, which may be considered the practical outer limit for breakwater construction, and the line of 5 fathoms, which is the inner limit of the deep-water anchorage, for both Santa Monica and San Pedro bays, are shown on the map accompanying this report.

METEOROLOGICAL CONDITIONS.

The following description of these conditions, in their relations to both bays, is given in the report of the Board of Engineers of 1890, under the head of Winds, Waves, and Exposure.

The prevailing wind on the California coast is from the northwest, nearly parallel to the coast line north of Point Conception, which is in latitude 34° 27′ N. At this point the trend of the coast changes from northwest to west. This fact, in connection with the bold topography of the shore, causes the prevailing winds along the southerly coast of California to be westerly. This wind never becomes more than a moderate gale. It never produces the heaviest waves. The disturbance of the water due to it is, however, always an inconvenience to vessels lying at a wharf ex-

posed to its action, and when the disturbance is greatest there is danger to vessels. This wind prevails on the southern coast during the greater part of the year with the intermission of calms in the autumn and winter. In the last-named season occur the southerly offshore winds, which produce the heaviest waves to which the coast line is exposed.

A northeasterly land wind, known as the "Santa Ana," occasionally blows from the dry hot plains lying to the eastward. Its duration is short and it is severe, but having no fetch over the sea, it raises no waves near shore. It occurs both on Santa Monica and San Pedro bays.

The southeaster comes in the winter and spring and brings rain. The storm first manifests itself by a wind from the southeast, which continues for a few hours, shifting then to the south and southwest. The storm clears up when the wind gets to the northwest. In these storms a heavy sea is developed, which breaks upon the coast line in waves of great magnitude. These waves come from the south and southwest. The waves produced by the southeast wind are short, designated by the sailors as choppy. The south and southwest seas, on the other hand, are long and heavy. A vessel at anchor under this exposure must, under these circumstances, get to sea, with the possibility of otherwise going ashore. It is the heave of the sea rather than the wind, although the latter alone is sufficiently dangerous, that makes the strongest ground tackle, at times, of no avail.

Although southerly winds prevail during the winter season and bring rain, yet their occurrence in violent form is not frequent, and a season has been known to pass without a severe storm, nor is the duration of a storm rarely extended over two or three days. In this respect the conditions of the southern coast of California are much less severe than in higher latitudes. This consideration is of great importance for the reason that owing to it a lighter profile may be adopted for a breakwater than would be permissible much farther north.

It also happens that a heavy westerly sea sets in, unaccompanied by wind, due to a cyclonic disturbance in midocean. The propagation shoreward of waves generated at long distance seaward is favored by the unusual depth of the Pacific Ocean.

It appears, then, that Santa Monica Bay is entirely open to the moderate downcoast or west winds which prevail during the greater part of the year, and that it also is exposed to the dangerous winds and seas which occur during the winter months, coming from the south and southwest. The degree of exposure is, however, not absolutely equal in all parts of the bay. The easterly end, near Malaga Cove, is afforded protection from the winds and seas from the south by the high land to the southward, and which also affords partial protection from the southwest seas. Catalina Island also aids in some degree to shelter this portion of the bay from southerly seas.

On the other hand, Santa Monica Bay is entirely sheltered from the southeast winds by the high lands of San Pedro Hill.

San Pedro Bay is protected by the same high land from the prevailing downcoast wind. In ordinary weather the Bay of San Pedro is quiet and vessels lie safely at anchor, and for the most part discharge cargo with lighters while the wind prevails. It was doubtless this circumstance which made this point the embarcadero of this part of the coast for the Mexican trade before California was acquired by the Americans. In more recent times the greater part of the commerce of this part of the country has also been transacted here. Formerly all the deep-draft vessels from Australia and Puget Sound discharged cargoes in this bay. Recently one of these ships discharged at the wharf at Redondo.

San Pedro Bay is also protected to a great extent from the southwest sea and wind by the island of Santa Catalina, which lies about 18 miles offshore to the windward. This island is 17½ miles in length and its height of 1,500 to 2,000 feet makes its shelter, as far as it extends, complete. It covers 48 degrees of the total arc of exposure from southwest seas, but leaves uncovered the angle between the westerly end of the island and Point Fermin, through which interval the direct southwest swells reach the San Pedro anchorage.

San Pedro Bay is also directly exposed to the southeast seas, which approach through the interval between Point San Juan and the easterly end of Catalina Island. While the winds and seas from the southeast are not regarded as formidable, those from points farther around to the south, that enter through the open space last referred to, are considered to be heavier and more violent than those that approach the anchorage ground from the westward of Catalina.

The record of vessels wrecked at San Pedro shows, with one exception, that the disasters occurred during the southerly storms, the heavy sea coming to the eastward of Catalina Island. The vessels were driven ashore on the west line of the bay. Among those lost were the *Nicholas Biddle*, *Callao*, *Adelaide Cooper*, *San Luis American*, *R. P. Buck*, and the *Kennebeck*. The exception noted was that of the *Amy*, which was driven ashore at Point Fermin during a northeast storm from the Santa Ana wind gap.

The arc of exposure of Santa Monica, extending from Point Dume on the west to Point Vincente on the east, is 101°, at Ballona 104°, and at Redondo 90°. Leaving out of consideration the last-named point, regarded as impracticable on account of depth, we may call the arc of exposure of Santa Monica Bay 102°. From Point Fermin as a center, the arc of exposure of San Pedro Bay around to the west end of Catalina Island is 60°. The arc protected by the island is 48°, and the arc included between the easterly end of the island and Point Loma is 42°, making the total exposure of San Pedro Bay to southeast and southwest winds and seas 102°. The aggregate angle of exposure of the two bays is therefore the same.

A memorandum kindly furnished by Prof. George Davidson, of the U. S. Coast and Geodetic Survey, a disinterested and able observer, to whose opinions the Board attaches the highest value, contains the following interesting information with reference to storms and exposure along this part of the coast: In the southeasters the swell of the Pacific comes from the southwest, and along the greater part of the coast of California breaks squarely upon the shore, reaching from profound depths at a very short distance from the land. The only fairly protected part of the coast is that from Point Conception eastward and southward to between San Pedro and San Diego. The winter storms of this coast have, however, a marked peculiarity; the gales increase in violence as we proceed to the north. In the low latitude of Santa Monica and San Pedro bays the winter storms are comparatively moderate, and the great islands of Santa Barbara form barriers against the full force of the winter swell. A strong evidence of the weakness of the destructive action of the southeast storms is seen in the very slow wearing away of the sandy cliffs, and of the bluffs at San Pedro; nor could the exposed wharves be maintained in this region if the destructive action of the storms were great.

POSSIBLE LOCATIONS FOR A DEEP-WATER HARBOR.

The Board of Engineers of 1890 reported that the fore shore of San Pedro Bay from Point Fermin to Point Lasuen is practicable throughout its length for commercial uses, both upon the plateaus and the lower lands. They selected as the best location for a deep-water harbor the present anchorage ground on the westerly side of the bay under Point Fermin, since the projection of the shore, giving protection from the westerly winds and a shore point for the commencement of the breakwater, affords greater advantages for securing a protected anchorage than any other section of the bay. The superiority of this location over any other in San Pedro Bay will be apparent upon an examination of the map; indeed, no other location in this bay was advocated at the hearings or in written communications to the Board. It is therefore considered unnecessary to compare in detail the relative merits of this and other locations between Points Fermin and Lasuen. The Board is of the opinion that the position on the westerly side of the bay under Point Fermin, as indicated by the Board of Engineers of 1890, is the best location in San Pedro Bay for a deep-water harbor to accommodate the largest ocean-going vessels.

In Santa Monica Bay, the Board of Engineers of 1890 reported the limit of practicable locations for a deep-water harbor to be along a portion of the shore line, 14 miles in length, positions eastward of Point Dume, for a distance of about 15 miles, being rejected on account of the abrupt and rocky character of the shore rendering them unsuitable for commercial purposes; and at Redondo Beach on account of the great depth of water making breakwater construction impracticable on account of cost. They indicate as the practical location of a breakwater a position nearly opposite the town of Santa Monica. It has, however,

been suggested at the hearings and in written communications to the Board that the difficulties of harbor construction at the position opposite Redondo Beach could be obviated by the establishment of a floating breakwater; and a project for the formation of a harbor opposite the wharf now in process of construction at a point north of old Santa Monica Cañon by the Southern Pacific Company, has been submitted by Mr. William Hood, chief engineer of the company, which is claimed to be less costly and more advantageously located for commercial purposes than the harbor indicated in Santa Monica Bay by the Board of Engineers of 1890. All these locations have been earnestly advocated in written communications and before the Board, and no others in Santa Monica Bay require consideration.

The locations above mentioned, in both bays, have all been employed for the purposes of commerce, except the location recommended by Mr. Hood, where the wharf is still unfinished, and all are connected by one or more railways with the city of Los Angeles.

It is proposed, therefore, to examine in detail the relative advantages of the following locations for the formation of a deep-water harbor, viz:

1. The location selected by the Board of Engineers of 1890 at the present anchorage on the westerly side of San Pedro Bay under Point Fermin.
2. The location indicated by the Board of Engineers of 1890 nearly opposite the town of Santa Monica.
3. A location opposite Redondo Beach, the harbor to be formed by a floating breakwater.
4. The location north of Santa Monica Cañon and covering the new wharf of the Southern Pacific Company, proposed by Mr. William Hood, chief engineer.

DESCRIPTION AND COMMERCIAL HISTORY OF THE LOCATIONS.

San Pedro.—The anchorage on the westerly side of San Pedro Bay, under Point Fermin, lies at the entrance of Wilmington Harbor, and should a breakwater be constructed at this locality it would cover the port of Wilmington, which would form the inner harbor. This is the oldest commercial landing on this part of the coast, having been an embarcadero in the days of Mexican possession, and a point of shipment for hides and tallow, lightered from shore to the trading vessels at anchor, and in recent times most of the commerce of this vicinity has been here transacted.

The harbor of Wilmington was originally one of the shallow lagoons, separated from the ocean by a narrow line of sand beach, which have been mentioned as characteristic of the shore of San Pedro Bay. In its unimproved condition it was an estuary about 3 miles in length, its navigable portion ending at Wilmington, and its lower part expanding into a shallow bay separated from the ocean by a bar carrying a depth of about 2 feet at mean low water. The estuary in its navigable part nowhere exceeded 800 feet in width, but it was inclosed by extensive flats which were covered by water at high tide. These flats extend for more than a mile above Wilmington, and below the town lie on either side of the waterway. The tidal volume has been estimated at about 257,000,000 cubic feet. No important streams discharge into this estuary. The San Gabriel River, which in former times occasionally emptied the waters of its higher floods into the inlet, now reaches the ocean through a new channel 10 miles to the southward.

The improvement of this harbor by the General Government has been in progress since 1871. The principal work has been the construction of two rubblestone dikes, one extending southeast from the western end of Rattlesnake Island to Deadmans Island, a distance of about 1¼ miles, and the other, from Timms Point, on the western side of the outlet, to a point about 600 feet southwest of Deadmans Island. As the result of this improvement, there is now a navigable channel into Wilmington Harbor carrying a minimum depth of about 14 feet at mean low water, and the formation of a depth of 16 feet is anticipated from the continuance of the work. It is believed to be established that the natural forces will be able practically to maintain this artificial channel.

The permanent improvement of a harbor entrance on a sandy coast is one of the most difficult problems of maritime engineering; indeed, the Board knows of no other instance of the successful maintenance of such an entrance without a considerable backwater discharge, or the assistance of frequent dredging, or the scour from flushing reservoirs. The permanent enlargement of such a channel to seven or eight times its natural depth by the construction of jetties aggregating only about 1¾ miles in length is an achievement so unusual that it merits attentive study.

The deterioration of improved channels of this character is principally due to the deposit of material brought down from the interior by the backwater or to the action of the sea on the bottom in storms. In this case, owing to the almost entire absence of backwater discharge, very little material is brought down by the outflowing currents; and the success of the improvement indicates how moderate must be the action of the ocean forces in this locality. This is further shown by the slow wearing away of the bluffs already mentioned and by the very gradual shoaling along the eastern dike. Those who are familiar with similar localities on the Atlantic coast, for example, the coast near the jetties at the mouth of the Merrimac River, where the fore shore has advanced as much as 400 feet in a single year, can not fail to notice the comparative slowness with which these changes progress in this locality.

Within the entrance of this harbor there is deeper water, and there are extensive and substantial wharves, where freights of iron, coal, lumber, and merchandise are discharged and carried away by rail. The interior harbor has about 4 miles of water front, nearly 1 mile of which is now utilized. Back of the channel there are low washes running in all directions, containing soft material easily removed, so that the water frontage can be greatly increased at moderate expense. This widening of the inner channels would also benefit the channel depths by increasing the volume of the tidal prism.

The mean range of the tide is 3.7 feet, so that vessels drawing less than about 18 feet now enter the inner harbor. Lumber vessels before entering generally discharge part of their cargoes outside and vessels of deep draft discharge into lighters at the outer anchorage.

The project of the Board of Engineers of 1890 proposes the formation of a harbor at the outer anchorage by the construction of two breakwaters covering an area east of Point Fermin from the southeast and southwest storms and seas. This harbor will be considered in detail hereafter.

This location is connected with the city of Los Angeles by two railways—the Southern Pacific and the Los Angeles Terminal. The former was the first line constructed to connect Los Angeles and the coast, and it became a part of the Southern Pacific system about the year 1880. This road follows the western shore of the bay nearly to the

southern end of Point Fermin, where the construction of a wharf has been proposed. This part of the shore is included in the town of San Pedro. The distances by this line from Los Angeles are to Wilmington 22 miles, and to San Pedro 25 miles. The Los Angeles Terminal Railway was constructed in 1890, and it is stated is ultimately to form part of a new transcontinental line. This road extends along the shore of Rattlesnake Island and has its terminal wharf on the eastern side of the inner harbor, the distance from Los Angeles being 27 miles.

Santa Monica.—The village of Santa Monica is situated on the table land 15 miles from Point Vincente. Southward of the high ground at Santa Monica the shore is low, falling gently to the large lagoon of La Ballona, about 3 miles southwest of the village. There was formerly a wharf at Santa Monica belonging to the Southern Pacific Company, at which considerable business was transacted between 1875 and 1878, but about the year 1880 the company removed the wharf, partly on account of its exposure to the western swell, and transferred all its business to Wilmington Harbor.

The Board of Engineers of 1890 suggested as the best position for a breakwater in Santa Monica Bay a location opposite the shore between the village of Santa Monica and the Ballona Lagoon, covering the angle of exposure between Point Dume and Rocky Point.

The village of Santa Monica is connected with Los Angeles by two railways—the Southern Pacific and the Southern California (belonging to the Santa Fe system). By the former the distance is 18 miles, and by the latter 21 miles. A line not now in use also extends from Los Angeles to La Ballona. These roads do not now handle ocean freight.

Redondo.—The port of Redondo has been created in the past three years, business having been commenced there in 1889. It is situated opposite the head of the remarkable submarine valley previously described in this report. A substantial wharf was constructed, extending from the shore, in a westerly direction, for a distance of about 1,000 feet, along the northern limit of this submarine cañon. It is said that opposite this part of the coast, owing to the depth of water, the sea is smoother during the northwest winds than elsewhere in Santa Monica Bay, and that the ground swell or undertow is imperceptible. The port is well sheltered from southeast gales by the Palos Verdes hills, which terminate in Cape Vincente and Rocky Point.

At the head of the submarine valley, and 1½ miles off shore, the water is covered with petroleum, which evidently comes from a submarine well. The extent of the surface indications is 1½ miles by three-eighths of a mile, and the depths over which they are found range from 32 to 100 fathoms, the middle depth being over 75 fathoms. It is said that this oiled surface has a material influence in quieting wave action.

The wharf at Redondo accommodates seagoing vessels of the greatest draft. With the exception of a very few days in the year, steamers can approach and land with perfect safety. At these exceptional times, when the westerly winds create a heavy swell, greater care and precautionary measures are required. Since the storms begin in the southeast and move around towards the west, there is always ample time and warning for vessels to haul off before the swell becomes dangerous. The holding ground is good, and there is room for the construction of other wharves should they be required.

Another feature of this locality deserves notice. Behind the low ridge of sand dunes and parallel to the shore there is a lake depression

1,400 feet in length and from 300 to 400 feet in width, whose waters are about at the level of high tide. It has been proposed to dredge in this depression a dock basin of sufficient depth to accommodate the largest ships. This basin is to be connected with the very deep water outside by a channel cut through the ridge and protected by a sea wall or jetty, and owing to the depth of water it is believed that this channel will remain open. This project seems feasible and has been favorably considered by competent engineers. The construction of such a basin would greatly increase the landing facilities.

Although this port has been available for business during only three years, it is stated that its traffic has grown to fully 60 per cent of the whole ocean-transportation business of this vicinity. This growth has been principally at the expense of Wilmington Harbor, and is due to the fact that large vessels can not go to a wharf at the latter port, so that their cargoes require two extra handlings, involving additional time, breakage, and expense.

It has been suggested that a floating breakwater can be constructed at comparatively small expense to shelter this landing and anchorage from westerly winds and seas.

An extensive hotel has been established at Redondo Beach, and it is a leading seaside resort. A town of considerable size has already gone up in the vicinity. It is connected with Los Angeles by two railways—the Southern California, of the Santa Fe system, and the Redondo Railway. The latter is a narrow-gauge road. Both extend out upon the wall. The distance to Los Angeles by the former is 23 miles and by the latter 22 miles.

Santa Monica Cañon.—During the present year the Southern Pacific Company has extended its railway from the village of Santa Monica westward along the shore to a point a little beyond old Center Monica Cañon, where a wharf was commenced, the construction of which is now in progress. This wharf when completed will be about 6,000 feet long, and is intended to accommodate seagoing vessels of the deepest draft.

The shore is a line of high steep bluffs, at the foot of which there is a narrow beach. Along this beach the railway is constructed. The distance by rail from Los Angeles to the foot of the Southern Pacific Company's wharf is $20\frac{3}{8}$ miles.

The project proposed by Mr. William Hood, chief engineer of the Southern Pacific Company, provides for the construction of a breakwater opposite the new wharf of the Southern Pacific Company and the adjacent shore, and covering the angle of exposure between Point Dume and Rocky Point.

PROPOSED FLOATING BREAKWATER AT REDONDO.

The project for harbor construction at Redondo differs so essentially from the designs suggested for the other localities that it is desirable to give it separate and prior consideration.

This location is easy of approach and free from hidden dangers; it is generally well sheltered from wind and sea; it has good holding ground and ample anchorage area; it has excellent landing facilities, which are capable of future extension, and it has convenient land communications with the commercial center. It appears to have all the advantages necessary for a great commercial port, except cover from occasional winter storms. The depth is too great for the construction of a permanent breakwater, and it is therefore to be determined whether

the necessary shelter can be provided by a floating breakwater, and whether it is desirable that the United States should undertake the construction of such a work.

In the investigation of this subject the Board is compelled to rely upon foreign authorities and theoretical considerations, as there has been no experience in this country with constructions of this character.

Mr. Vernon-Harcourt, in his treatise on Harbors and Docks, remarks as follows:

> Various schemes have been suggested from time to time for arresting waves by means of floating breakwaters moored in position. It has been imagined that the undulation, being on the surface, might be stopped or reduced considerably by an obstacle at or near the surface; and thus the cost of building up a breakwater from the bottom could be saved. Though, in the case of large waves, the undulating motion is not simply superficial, yet, undoubtedly the power of the waves would be greatly diminished if the upper portions could be arrested in their progress; and the gain in dispensing with a solid structure founded in the bottom of the sea would be very great.
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> A floating breakwater was moored in front of the entrance to the port of Ciotat with the object of protecting it from the swell. The breakwater consisted of a double row of long buoys chained together, and so arranged that the spaces between the buoys of the one row were covered by the buoys of the second row. The buoys, however, broke from their moorings during the storms, and moreover did not arrest the waves, and they were consequently removed.
>
> Other forms have been tried or proposed, such as rafts of timber; and also a series of beams floating vertically, by being moored at one extremity in imitation of weeds and reeds growing in the water. These attempts, however, have not been successful in adequately reducing the waves; for these kinds of constructions are liable either to be shattered or to afford little shelter, or, if strong enough to offer real resistance to the waves, to drag or break their moorings. Thus the *Great Eastern*, which may fairly be regarded as a huge floating breakwater, broke from her moorings when exposed to a heavy sea off Holyhead. The whole strain of stopping the waves is in fact thrown, in this case, upon the moorings; and they would have to be made enormously strong to be able to bear it. The force of waves is so great, as indicated by its effects in moving huge masses, that no fragile floating moored construction could possibly oppose an adequate resistance. The accumulative power of the wind, acting through the medium of the waves, can not be evaded, but must be met; and this can only be effectually accomplished by a solid breakwater.*

The following remarks of Mr. J. Scott Russell, a very high authority upon the movements and effects of waves, were made in the discussion of a paper on breakwaters, read before the British Institution of Civil Engineers, by Mr. Michael Scott:

> These views of the nature of the forces to be resisted in breakwaters, and the methods of dealing with them, showed the inefficiency of what were called floating breakwaters. Large floating masses would certainly intercept oscillating waves of a small depth, and in moderate weather they would often still the water. The lee side of the *Great Eastern*, when lying at Holyhead, afforded excellent anchorage for small vessels in light breezes. But when the great roller, the one great wave of translation came, the anchors snapped at once, showing the danger which would have been incurred had she been moored broadside to the roller, instead of offering to it the small resistance of her fine bow. No known force could effectually secure a large floating breakwater, broadside-on, to a heavy ground swell. It would move horizontally with the wave of translation, which would propagate itself along the bottom just the same as if the breakwater was not there.†

Hagen, in his Handbuch der Wasserbaukunst, discusses this subject at considerable length. He describes the floating batteries built at La Ciotat, on the south coast of France, which remained in the sea for several years, but were ultimately failures; a similar structure at Brighton, which was also a failure; another at Dover, which broke its chains three times, and was finally removed, and a number of more or

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* Harbours and Docks, by L. F. Vernon-Harcourt; Oxford, 1885, page 94.
† Proceedings Institution of Civil Engineers, vol. XIX, page 655.

less fanciful projects, which have not yet been tried or approved by engineers.

The only structure of this character mentioned by Hagen as having been, perhaps, temporarily successful was the breakwater of Capt. Sleigh, which he called a *floating beach.* It was claimed that this was used successfully at Lowestoft to cover the construction of the piers, but this statement was not fully established. Breakwaters of this character were subsequently tried upon the Thames, but they were nowhere permanently adopted.

Hagen points out that the main difficulty with all such structures is the anchoring, and explains why they should never be established in very deep water, but always near the shore beyond the regularly oscillating waves.*

Franzius, in his Handbuch der Ingénieurewissenschaften, mentions several attempts to establish floating breakwaters, but considers the security of all such arrangements at present doubtful.†

Debauve, in his Manuel de l'Ingénieur des Ponts et Chaussées, describes the experiment at La Ciotat, which, he says, did not arrest the propagation of powerful waves, and could not succeed, as it was impossible to maintain the anchorage during storms. He remarks that the English experiments have not led to good results.‡

The Board has no information of any existing structure of this character except a floating breakwater recently established at Monaco, on the Mediterranean Sea, a brief description of which is published in Le Genie Civil of May 28, 1892, and republished in the Engineering Record of June 25, 1892. In this location a floating breakwater may perhaps prove successful, as the height of the waves is comparatively small and the tides are inappreciable; but in view of previous experience elsewhere on the north coast of the Mediterranean, the project must for the present be considered a doubtful experiment.

It has been suggested that a floating breakwater at Redondo about 1 mile long should be located parallel with the shore and from three-quarters of a mile to one mile outside the wharf. This would require an anchorage of the breakwater in about 30 fathoms of water. In view of previous experience with such structures, it is believed that a safe and permanent anchorage in this position would not be practically possible. Such a breakwater would not furnish adequate shelter from the southwest swell unless it crossed the axis of the submarine cañon.

This would be about the worst place that could be selected for such an anchorage, for the structure would lie broadside across the path of the great wave of translation which follows the line of deepest water, the power of which, as Mr. Scott Russell says, could not be resisted. If the breakwater were placed farther to the westward, vessels might leave the wharf and anchor behind it during storms; but if it were torn from its moorings, it would not only cease to be a protection but would become a serious danger to the shipping. In view of former experience it would seem the part of wisdom for vessels, in stormy weather, to seek a place of safety somewhere to the windward of the breakwater.

The harbor formed by the establishment of such a breakwater would not be defensible, since the structure could be easily destroyed by the fire of ships or by movable torpedoes.

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* Handbuch der Wasserbaukunst von G. Hagen, Seeufer und Hafenbau, Berlin, 1881, vol. IV, page 80.

† Handbuch der Ingénieurwissenschaften, Der Wasserbau; von L. Franzius und Ed. Sonne, Leipzig, 1884, vol. III, page 252.

‡ Manuel de l'Ingénieur des Ponts et Chaussées, par A. Debauve, Paris, 1878, vol XIX, page 612.

The Board is of the opinion that it would not be advisable for the Government to undertake the costly and doubtful experiment of establishing a floating breakwater at Redondo, especially as such a shelter is not needed for the protection of life or property, but merely for the occasional convenience of navigation.

BREAKWATER SITES.

For the purpose of comparison, the Board adopts the breakwater locations indicated by the Board of Engineers of 1890, opposite Santa Monica village, and by the Chief Engineer of the Southern Pacific Company, above Santa Monica Cañon, as they are considered as favorable as any sites in these localities.

As before remarked, the project of the Board of 1890 for the formation of a harbor at San Pedro proposes the construction of two breakwaters covering an area east of Point Fermin from the southeast and southwest seas. An opening of 1,500 feet is left between them to afford an entrance to the harbor from the westward and to provide for the circulation of the littoral currents.

In every harbor two important features require consideration, accessibility and shelter for the anchorage and landings. Unfortunately an increase in the number or width of the entrances is generally accompanied by an increase of disturbance in the interior, so that in each case the practical question to be determined is, to what extent accessibility should be sacrificed for shelter or shelter for accessibility.

In the case in question the Board is of opinion that the increased accessibility resulting from a western entrance is accompanied by too great a sacrifice of protected area and shelter for the landings. The greater part of the foreign commerce of this port in the future will be conducted by steamers which will have no difficulty in entering or leaving by the eastern entrance. All large sailing vessels are now practically steamers so far as concerns their entrance and departure from harbors, since they always employ tugs. Small coasting vessels would doubtless find difficulty in leaving the harbor by the eastern entrance with the wind from the southeast; but, as was remarked in the testimony before the Board, when the wind is in this direction such vessels always prefer to remain within the harbor.

It may be considered that such an opening is desirable to furnish free entrance to vessels seeking a refuge in time of storms. It has been shown by experience, however, that entrances between jetties involve dangers to navigation which are sometimes greater than the benefits they confer. For example, the percentage of wrecks at the mouth of the Tyne has largely increased since the construction of the jetties, as is shown by statistics covering a period of ten years.* The entrance between the jetties has exactly the same width as that proposed for the western entrance at San Pedro.

The opinion that the western entrance is not necessary or desirable for the convenience of navigation is confirmed by the testimony of two experienced shipmasters at the hearing before the Board. It will be shown in another part of this report that such an entrance would greatly diminish the peculiar advantages which the location possesses for landing facilities.

From a comparison of the hydrography of 1854 and 1888, it appears that some shoaling has taken place opposite the entrance to Wilming-

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* Report from the Select Committee on Harbor Accommodation; evidence of Mr. Thomas Farrer, permanent secretary of the Board of Trade, London, 1883.

ton Harbor. The amount of deposit is so small, however, that the Board does not apprehend that any serious consequences will result therefrom. It is, moreover, doubtful whether or not a gap or opening in the breakwater would prevent it.

The Board recommends a single, curved breakwater, extending southward and eastward from Point Fermin, substantially as shown on the accompanying drawings, subject to such modifications in detail, as experience during the progress of the work may show to be necessary or expedient. Such a breakwater will present no salient angles to the attacks of the sea, no reëntrant angles to compress the moving wave, and it can be extended eastward should the necessities of commerce require it. Its length is 8,200 feet, being 200 feet more than the aggregate length of the two breakwaters proposed by the Board of 1890. Should further investigation demonstrate the desirability of a western opening, a result which the Board does not anticipate, the plan can be modified accordingly.

COMPARISON OF THE LOCATIONS.

As a basis for the comparison of the relative advantages of the locations proposed in Santa Monica and San Pedro bays, the board invites attention to the following propositions, which were briefly referred to in the beginning of this report:

The harbor to be formed is not primarily a harbor of refuge, but a port of commerce. It should be located and designed with special reference to the requirements of deep-draft vessels engaged in foreign trade, because this trade promises to be of the greatest national importance in the future, and because such vessels, after long voyages, especially need convenient and commodious places for refitting and supply. The accommodation of the coasting trade is of secondary importance, but it should receive due consideration. From a national point of view the capacity of the harbor for defense is a matter of the highest moment, since an indefensible commercial port is simply an invitation to attack in time of war. We have now too many such ports, and it is not desirable to increase the number. Finally, the relative cost of harbor construction and maintenance should be considered.

The questions, therefore, which require examination are as follows:

1. The comparative advantages of each location as a point of arriving and departure, especially for deep-draft vessels engaged in the foreign trade.

Under this head we must consider the character of the approaches from the sea as regards facility of navigation with the prevailing winds, the safety from hidden danger, and the distance from commercial ports.

2. The comparative advantages of each location as a place of shelter and for receiving and discharging freight.

Under this head we must consider the extent of anchorage area and its exposure to wind and sea; the extent and shelter of frontage for landing facilities; the capacity of the harbor for extension when required by the future demands of commerce; and the character of the holding ground.

3. The comparative advantages of each location for land communication with the commercial center.

Under this head we must consider the number of railroad lines, the distance by rail, and the grades and curves on each line.

4. The comparative adaptability of each location for harbor construction and maintenance.

Under this head we must consider the amount of natural shelter afforded by the position; the suitability of the foundation for the breakwater; the comparative facility and cost of construction; the exposure to injuries requiring repair, and the probable permanence of the harbor as regards shoaling.

5. The relative capacity of each location for defense.

ADVANTAGES FOR ARRIVAL AND DEPARTURE.

The approaches from the sea to all the locations are open and unobstructed, and favorable for navigation with the prevailing winds. The deep-water entrance of the San Pedro Harbor is about one and one-half times as wide as the eastern entrances of the Santa Monica harbors, and there is a much better offing. The Santa Monica harbors have western as well as eastern entrances, which give increased accessibility, but diminish the shelter.

The Santa Monica harbors are free from hidden dangers. At San Pedro there is a rock covered by 18 feet of water, about 1 mile north of the eastern end of the proposed breakwater. This rock is not in the line of approach, and can not be a serious danger, since it was unknown until discovered in the Engineer survey of 1888. Its removal is, however, desirable.

The sailing distances of the three locations from transpacific ports are practically the same. As regards the coasting trade, the principal article transported is lumber brought from northern ports. For this trade the sailing distance for the Santa Monica harbors is about 25 miles less than for the San Pedro Harbor. This difference in distance is, however, not sufficient to affect the cost of transportation, and a few hours' difference in time is not a matter of importance for this class of freight. Should the Nicaragua Canal be completed, it is predicted that there will be a very great increase in the fruit production of southern California, and that fruit will be transported in refrigerator steamers to New York in ten days, to New Orleans in eight days, and to Liverpool in fourteen days. For this prospective traffic the San Pedro Harbor is the nearer port.

The Board is of opinion that there is no essential difference between the locations as regards advantages for arrival and departure.

ADVANTAGES FOR SHELTER AND FOR HANDLING FREIGHT.

For the purposes of comparison, the anchorage areas for the Santa Monica harbors are assumed to be the areas included within the breakwaters, the lines drawn through their ends normal to the shore, and the 6-foot contour; and for the San Pedro Harbor the area included between the breakwater, the line drawn from the end of the breakwater to Deadmans Island, and the 6-foot contour. The deep-water anchorage is assumed to be the area over which there is a depth of at least 30 feet; the remaining area will be referred to as the inner anchorage.

The total anchorage area at the San Pedro Harbor is 1,187 acres. This includes the area in Wilmington Harbor. The deep-water area is 339 acres and the inner anchorage 846 acres. The harbor at Santa Monica village has a total anchorage area of 1,078 acres. The deep-water area is 602 acres and the inner anchorage 476 acres. The harbor above Santa Monica Cañon has a total anchorage area of 994 acres. The deep-water area is 479 acres and the inner anchorage 515 acres.

In the Santa Monica harbors the inner anchorage will be very much diminished by the wharves, which must extend completely across it to reach deep water. This is not the case to the same extent in the San Pedro Harbor.

To compare the exposures, it is assumed that so much of the anchorage area as lies north of southeast and southwest lines drawn through the ends of the breakwaters is not fully covered from the heavy swells. The harbor at San Pedro has a protected area of 852 acres and an unprotected area of 335 acres. The harbor at Santa Monica village has a protected area of 209 acres and an unprotected area of 869 acres. The harbor above Santa Monica Cañon has a protected area of 221 acres and an unprotected area of 773 acres.

The harbor above Santa Monica Cañon, within the anchorage limits assumed, has a land frontage 8,000 feet in length available for the construction of wharves. The harbor at Santa Monica village has a similar land frontage 8,000 feet in length. In the harbor first mentioned, however, the land approach to the wharves is narrow and not capable of extension except at great expense, and there is no available place for the construction of interior basins. The conformation of the ground is such that free access to the landing facilities of the harbor would not be easily attainable by all parties engaged in the business of land transportation.

At Santa Monica village, on the other hand, the approaches from the land are more open, and at La Ballona an interior basin could be readily formed. At San Pedro there is a land frontage of 4,300 feet in the outer harbor without including the inner line of the breakwater. Since the breakwater is connected with the shore, a railway can be constructed along it, and wharves can be readily projected from its inner face. This advantage would be sacrificed if a western entrance were established. This gives for the outer harbor an additional frontage of 8,000 feet and a total frontage of 12,300 feet. The frontage of the inner harbor is about 4 miles long. The total frontage for the whole harbor is therefore 33,420 feet, or about $6\frac{1}{3}$ miles. The approaches are good, as they include both sides of the harbor, and Wilmington Harbor forms a magnificent interior basin.

In every harbor a portion of the area must be more or less exposed, owing to the necessity of providing convenient communication with the sea. In a port of commerce it is of great importance that the harbor should be so located and designed that the landing facilities should be established in the most sheltered part. In the Santa Monica harbors this imperative condition is entirely neglected, the landing facilities being necessarily situated entirely within the exposed area. As a consequence of this, the wharves will not be well protected during storms, and small vessels will crowd the quiet spaces of the deep-water anchorage. At the San Pedro Harbor the landing facilities are situated within the unexposed area, and small vessels will find their best shelter in bad weather within the inner harbor.

The deep-water anchorage area is amply sufficient in all the harbors and can in all be readily extended in the future. In the San Pedro Harbor the landing facilities can be greatly extended within the inner harbor without any addition to the outer breakwater. This is not the case in the Santa Monica harbors.

In all the harbors the holding ground is good. Some doubts have been expressed with regard to the character of the holding ground at San Pedro, but after diligent inquiry the Board is satisfied that it is as good in this location as in the others.

In the following table some of the data given above are assembled for convenient reference:

Location.	Deep-water area.	Inner anchorage.	Protected area.	Unprotected area.*	Wharf frontage.	Total anchorage area.
	Acres.	*Acres.*	*Acres.*	*Acres.*	*Feet.*	*Acres.*
San Pedro	339	846	852	335	32,420	1,187
Santa Monica Village	602	476	209	869	8,000	1,078
Santa Monica Cañon	479	515	221	773	8,000	994

*The "unprotected area" is at times protected, but not when the swell is from the southwest.

The Board is of opinion that the location at San Pedro is decidedly the best, considered as a place of shelter and for receiving and discharging freight.

COMMUNICATION WITH THE COMMERCIAL CENTER.

As before stated, the railway distances from each location to the city of Los Angeles are as follows: San Pedro, by the Southern Pacific, 22 miles to the inner harbor and 25 miles to outer harbor; by Los Angeles Terminal, 27 miles. Santa Monica Village, by Southern Pacific, 18 miles; by Southern California (Santa Fe system), 21 miles. Santa Monica Cañon, by Southern Pacific, $20\frac{3}{8}$ miles.

The cost of transporting freight over a railroad depends not only upon the distance, but also upon the grades and curves in the line. The Board has been unable to obtain the detailed information required for a comparison of these railways regarded as lines for convenient and economical freight transportation, but the differences in distance are so small that it is believed unnecessary to give them any important weight in selecting the location of a harbor.

ADAPTABILITY FOR CONSTRUCTION AND MAINTENANCE.

The location at San Pedro has natural protection from all winds and seas except from the southeast around to the southwest. The San Pedro Hill, 1,493 feet high, which forms the west side of the bay, furnishes a more perfect shelter from wind and sea than can be afforded by any artificial structure in Santa Monica Bay. In all the proposed locations the foundations are favorable.

Before attempting a comparison between the locations as regards the relative facility and cost of breakwater construction, it is necessary to determine the general character of the structure considered best for adoption. The Board of Engineers of 1890 submitted estimates upon two projects, one of which contemplated the use of concrete for the formation of the superstructure of the work, but did not recommend the adoption of this project. The use of concrete in this particular case is considered undesirable for the following reasons:

1. It increases the cost of the work, as shown by the comparative estimates of the Board of 1890.
2. It increases the difficulty of conducting the work, requiring separate plants for making and handling the concrete and forming the random stone substructure.
3. It increases the difficulty and cost of future repairs, requiring special plant not easily attainable.
4. It is necessary, since random stone breakwaters of moderate di-

mensions have proved perfectly satisfactory with much more exposed positions.

These reasons for the rejection of the concrete are considered conclusive; and further discussion of the relative merits of concrete and other methods of construction is believed to be unnecessary.

The Board proposes, therefore, for the purposes of comparison and estimate, a random stone breakwater, the substructure to the level of mean low water to be formed by dumping stone along the line of the work, and the superstructure, above the level of mean low water, to be constructed of heavy stones laid in position on the slopes, the interior space to be filled with rubble. The cross section and details of this structure will be considered hereafter. It is at present only necessary to remark that the exposures at the proposed locations do not vary sufficiently to require different cross sections.

The only quarries now available for the supply of the stone required are situated on Santa Catalina Island. It is reported that these quarries can furnish an abundant supply of good quality, including stone of the larger dimensions. If material is obtained from this island it would be transported to the site of the breakwater in barges and dumped into place, or deposited by steam derricks from the barges, as is now being done at the Delaware Breakwater. The distances from Santa Catalina Island are to San Pedro 21 miles, and to the nearest site in Santa Monica Bay 37 miles, the difference in distance being 16 miles. Estimating upon data obtained from the experience in Delaware Bay the additional cost of transportation to Santa Monica Bay, allowing 1 cent per cubic yard for additional cost of coal, would be not less than 11 cents per cubic yard as measured in the work.

It has been strongly urged, however, in support of the location of the harbor in Santa Monica Bay, that granite of excellent quality can be obtained by rail, with a short haul and down grade, at less expense than it can be procured at San Pedro from Catalina Island. The location referred to is in the Cold Water Canyon, about 14 miles northeast of Santa Monica. As before remarked, it was visited and examined by the Board.

Although a little surface material has been removed, the quarry is not sufficiently opened to justify the formation of any judgment as to the character and extent of the stone. The railway for the transportation of material to the coast has not yet been constructed.

The advantages of using this stone for breakwater construction have been ably advocated by the chief engineer of the Southern Pacific Company, who has submitted detailed estimates to demonstrate the economy of its employment. Although it seems hardly necessary to give serious consideration to facilities which do not now and may never exist, the Board has carefully examined these estimates, and submits the following remarks thereon:

Let us suppose the quarry to have been opened and found to contain the character and quality of stone required; the railroad to have been constructed, and the proprietors of the quarry and of the railway to be ready and willing to furnish and transport the material at reasonable rates.

If the stone is obtained at Santa Catalina Island the following operations are required:

1. The material must be quarried.
2. It must be loaded on barges.
3. It must be transported by water to the site.
4. It must be deposited in the work.

If the stone is obtained at Cold Water Canyon the following operations are required:

1. The material must be quarried.
2. It must be loaded on cars.
3. It must be transported by rail to the shore, and thence by barges or over a trestle to the site.
4. It must be deposited in the work.

Assuming that the methods are equally favorable as regards the first, second, and fourth items, we have simply to compare the methods of transportation. It may be remarked first, that in the case of Santa Catalina Island, the transportation route has unlimited capacity and is perfectly under the control of the parties furnishing the stone. In the case of Cold Water Canyon the route has a limited capacity, and the transportation is controlled by the railway company and not by the contractors or the Government. No competition in the transportation is possible. The contractors and the Government are simply at the mercy of the railway. Experience shows that this is a point of great importance. All the stone used in the construction of the Delaware Breakwater is transported 7 miles by rail to tide water, and thence carried by water 64 miles to the work. Delays and difficulties frequently result from the fact that the railway is not under the control of the contractors or the Government. No trouble is ever experienced in the water transportation.

Mr. Hood assumes 1 cent per ton-mile (ton of 2,000 pounds) as the price for railway transportation. Whatever may be the basis of this estimate, it is of little value in determining the cost of the service to the Government. Mr. Hood strikes the keynote of the situation when he remarks that "the cost of moving rock by rail to the breakwater site * * * is evidently a matter for the contractors to negotiate with this [the Southern Pacific] or other companies." Actual experience is perhaps as good a guide as can be followed. In the Delaware Breakwater work the cost of railway transportation to the contractors is 3.21 cents per ton-mile (ton of 2,000 pounds), although the price of coal is much lower than on the Pacific coast. The cost by rail is always at least three times as great as the cost of water transportation. On this basis it will cost nearly twice as much to transport a ton of stone by rail from Cold Water Canyon to the shore at Santa Monica as to carry it from Santa Catalina Island to the breakwater site at San Pedro. In the case of transportation by rail, there is the additional labor and expense of moving the material over a trestle to place it in the work, or of rehandling it into barges and transferring it by water for the same purpose.

As regards the trestle method of construction, the Board is not aware that it has ever been employed in the formation of a detached breakwater, unconnected with the shore, like that proposed in Santa Monica Bay, although at Portland, England, the staging was carried across an opening 400 feet wide. It was much employed in former times, notably in the harbors at Holyhead and Portland, but the improvements of recent years in barges for the transportation and handling of stone have resulted in the practical abandonment of this method for breakwater construction. The great breakwater recently completed in the outer harbor of Boulogne was constructed from barges, although it is connected with the shore and the conditions of the work were as favorable as possible for the employment of the trestle method. The steam-derrick barges now employed at the Delaware Breakwater carry about 500 tons each (ton of 2,240 pounds), and rapidly discharge their cargoes, readily handling stones of 10 tons weight without undue strain upon the plant.

The principal objections to the use of a trestle for large structures in deep water are that it is difficult and expensive to maintain in storms; it is liable to injury from the sea worm; it is difficult to replace in case of injury, since for this purpose it is necessary to drive the uprights through the stone mound; it requires considerable lateral extension in order to deposit the stone over the width of the breakwater; and, finally, the heaviest strains are brought upon it when it is old; that is, during the construction of the superstructure, which is formed of the largest stones. The method is still of great value in the construction of low works of moderate cross section in water too shallow for the convenient use of barges, such as the extensive jetty at the mouth of the Columbia River and at other points on the Pacific coast; but in the opinion of the Board it is not adapted to the construction of large structures located in deep water.

According to Mr. Hood's estimates, which will be found in the Appendix, the cost of the trestle method at Santa Monica Bay is considerably less than that of the barge method, being for the ordinary class of rock $1.69 per cubic yard in position by the former method and $1.43 by the latter.

The Board does not consider it necessary to investigate in detail the estimate for the trestle method, because it is based upon an assumption which must be regarded as inadmissible—that the structure is to be completed in 900 working days. Let us see what this assumption involves. The total quantity of stone required for the work, as estimated by Mr. Hood, is 2,709,354 cubic yards. This requires a quarry output of 3,000 cubic yards per working day. This is far beyond any rate of production known to the Board, and it is believed that it could not be economically accomplished. It would require too great a development of the transporting plant and of the facilities for handling the material. About 140 car loads per day—a length of at least 1 mile of loaded cars—would have to be transported to the shore. The Board is confident that no such rate of progress can be attained under the regulations of the Government and with the annual appropriations of Congress. In providing for public improvements the interest account never receives consideration. The work must be extended over a considerable term of years, during which the trestle will have to be repeatedly replaced. The Board is of opinion that under the circumstances the trestle method will be more costly than the barge method.

Assuming that the barge method is to be employed, it is evident to the Board that the breakwater proposed by Mr. Hood at the site above Santa Monica Cañon can be constructed more cheaply with material from Santa Catalina Island than with material from Cold Water Cañon. Mr. Hood includes a quarry royalty of 23 cents in his estimate for Santa Catalina Island, but omits it from his estimate for Cold Water Cañon. The Board sees no reason to anticipate more liberality from the owners of one quarry than from those of another, and therefore believe that this item should not be left out of the estimate for Cold Water Cañon. This correction alone will make the cost for Santa Catalina Island less than the cost for Cold Water Cañon; and if the items for land and water transportation are corrected to conform to experience, the relative cost for Santa Catalina Island will be still more reduced.

As regards the larger stone, there is in the Delaware Breakwater practice no increase in cost for carrying and handling. With proper plant it costs much less per ton to handle the large stones than the small ones. Stone placed above the water level, however, is estimated to cost about one-third more than stone placed below it.

The amount of stone required for the construction of the breakwater proposed for San Pedro will be much less than for either of the breakwaters proposed for Santa Monica Bay, the area of the profile along the axis of the breakwater at San Pedro being 322,000 square feet and at Santa Monica Cañon 351,700 square feet.

The latter breakwater has less volume than the one at Santa Monica Village.

Experience in the Delaware Bay shows that the parts of random-stone breakwaters, which are most liable to injury and which most frequently require repairs, are in the exposed ends. The San Pedro breakwater has but one exposed end, while the Santa Monica breakwaters have each two. The latter would, therefore, be more expensive and troublesome to maintain. In this connection it may be remarked that, should the harbor of San Pedro be provided with a western entrance, there would be three exposed breakwater ends, and the cost of maintenance would be greatly increased.

The probable permanence of the San Pedro Harbor as regards shoaling has already been investigated. Along the shore of Santa Monica Bay, in rear of the proposed breakwaters, there is a littoral current which transports sand to the westward. The wharves in these harbors would act as spur jetties and would doubtless collect some moving material. It is believed that in all the harbors considered the deposits will be too slow to involve serious expense for maintenance. It is impossible to determine in which harbor the greatest amount of shoaling would occur.

In connection with this question of the relative cost of maintenance, it should be remarked that the harbor at Wilmington has been established for many years and improved at great expense by the Government. It will not, in any event, be abandoned. If, then, another harbor is constructed in this vicinity, the Government will be compelled to light, defend, improve, and maintain two harbors where one would answer the purpose.

The Board is of the opinion that the location at San Pedro is decidedly the best as regards adaptability for construction and maintenance.

CAPACITY FOR DEFENSE.

The Board, after careful consideration, is of the opinion that the location at San Pedro is the best and cheapest as regards capacity for defense.

CONCLUSION.

Having made a careful and critical examination for a proposed deep-water harbor at San Pedro or Santa Monica bays, as required by law, the Board is unanimomsly of opinion that the location selected by the Board of Engineers of 1890, at the present anchorage at the westerly side of San Pedro Bay under Point Fermin, is the "more eligible location for such harbor in depth, width, and capacity to accommodate the largest ocean-going vessels and the commercial and naval necessities of the country."

ESTIMATE OF THE COST.

It order to estimate the cost of the breakwater proposed for the formation of the harbor at San Pedro Bay, it is necessary to establish the form of cross section and the general method of construction to be adopted. For this purpose the results of experience at the Delaware

Breakwater have been carefully investigated. This breakwater was commenced in 1829, and a portion of it is still in process of construction. It is exposed to the action of storms much more violent than those which occur on the coast of southern California, and it is therefore considered that the dimensions determined from its study may be adopted with safety. As the cross section recommended by the Board differs somewhat from that usually adopted, a brief statement of the method followed in its determination is desirable.

The Delaware Breakwater is composed of three parts; the eastern branch, which is about half a mile in length, and the western and middle branches, which are each about a quarter of a mile in length. The eastern branch, which is generally known as the breakwater, and the western branch, which is known as the ice-breaker, were commenced in 1829 and completed in 1869; the middle branch, which is called the work in the gap, was commenced in 1883, and is still under construction, having been raised to the level of mean low water.

In the construction of the substructure below low water in all these works the plan followed contemplated the formation of a mound of random stones, with slopes determined by the action of the sea; but owing to the different methods employed, the results obtained vary widely in the three branches. In the eastern branch the form and dimensions of the section were principally based upon a study of the long flat slopes of the Cherbourg and Plymouth breakwaters, at that time the only practical examples of extensive works of the same kind, and owing to the primitive character of the plant employed the material was frequently deposited outside of the limits of the assumed cross section. In the construction of the ice-breaker or western branch, little attention appears to have been paid to theoretical cross sections. As a consequence, its exterior slopes are much steeper than those of the eastern branch, a variation which can not be wholly accounted for by difference of exposure, and they may be considered to approximate much more closely to the true storm-developed slopes.

After the middle branch had been raised to a level of about 15 feet below mean low water, a method of placing the stone was adopted which was designed to facilitate the formation of the true storm-developed slopes. The stone is transported to the breakwater in large steam-derrick barges, carrying from 500 to 550 gross tons. These barges are moored across the site perpendicular to the axis of the work, and the stones are swung out by the derrick, lowered into the water, and dropped accurately into position. All the stones are deposited uniformly within the limits of the assumed horizontal low-water section, with their longer dimensions perpendicular to the axis of the breakwater, the large stones being placed on the sea side of the work. The specifications require that the material shall be in masses weighing generally from half a gross ton upwards, but not exceeding 5 per cent of the number of stones may be between 800 pounds and half a ton in weight. Many stones weighing from 3 to 6 tons are, however, placed in the work, since the derricks can readily handle 10 tons, and it is cheaper to unload the large material. The slopes of this structure exhibit remarkable steepness, but as they have only been exposed to the storms of one winter, and the superstructure has not yet been built, it is not considered safe to base any deductions upon them. They seem to indicate, however, that the immense masses heretofore considered necessary for the formation of random stone breakwaters may be greatly reduced.

The superstructure on both the completed branches of the work

rises about 8 feet above the highest high water, and its top width is about 22 feet. The top and front and rear slopes are formed of very large stones, weighing on the average some 5 or 6 tons, roughly rectangular in form, and laid up in position with their longer dimensions perpendicular to the axis of the breakwater, the interior space being filled with rubble. This part of the work has well resisted the forces of the sea.

In establishing the cross section for the proposed breakwater at San Pedro Bay a careful study has been made of forty sections of the completed work and twenty sections of the uncompleted work in Delaware Bay. The upper surface of the substructure is assumed at the plane of extreme low water. The determinations required are as follows:

1. The position of the plane of rest.
2. The interior slope of the substructure.
3. The exterior slope of the substructure below the plane of rest.
4. The exterior slope of the substructure above the plane of rest.
5. The height and top width of the superstructure.
6. The interior slope of the superstructure.
7. The exterior slope of the superstructure.

These elements fully determine the cross section.

Position of the plane of rest.—This is the horizontal plane below which the action of the sea is assumed to be so small that it may be neglected. At the Delaware Breakwater its position was formerly assumed at 12 feet, and more recently at 15 feet, below mean low water. A careful analysis of all the sections was made, to determine, if possible, the location of this plane from the effects of the sea on the slopes. The ice-breaker shows no indication of the existence of such a plane, the slope being uniformly 1 on 2 from top to bottom. This is doubtless due to the fact that a large part of the stone was discharged from cars over the exterior crest. Observations made in 1883 on the four shore breakwaters in Sandy Bay, near Rockport, Mass., which were constructed by discharging stone from cars over the crests, showed the exterior slope to be 1 on 2, and give no indication of a point of inflection.

The exterior slopes of the eastern branch give a point of inflection at 12 feet below mean low water, but the slope below this point is 1 on 1.6, instead of 1 on 1.3, as it should be, below the plane of rest. This indicates that the position of the point has been determined by the way the stone was deposited, and is not the true storm-developed position. To correct the bottom slope the point must be lowered. The Board has adopted 15 feet as the depth of the plane of rest below mean low water at San Pedro.

It may be remarked that the position of this plane is much lower when a concrete superstructure is used, owing to the vertical reaction of the wave.

Interior slope of the substructure.—This is generally assumed as 1 on 1. Only two of the forty sections examined stood at this inclination, all the others having a slope of 1 on 1.3. This latter slope has, therefore, been adopted.

Exterior slope of the substructure below the plane of rest.—This should evidently be the same as the interior slope, and is therefore established as 1 on 1.3.

Exterior slope of the substructure above the plane of rest.—The flat upper slope of the eastern branch is evidently due to the method of construction. The exterior slope of the ice breaker, which is considered more nearly the true storm-developed slope, is 1 on 2. This slope is therefore adopted.

Height and top width of the superstructure.—The height at Delaware Breakwater is 8 feet above highest high water. Experience shows that this is too low, the top of the wave sometimes going completely over the work. The height of 10 feet above highest high water, as recommended by the Board of Engineers of 1890, is therefore adopted.

The top width at the Delaware Breakwater is 22 feet, and has proved to be ample. The top width at 10 feet above high water is therefore established at 20 feet, which gives a thickness of nearly 23 feet at the 8-foot level.

Interior slope of the superstructure.—This is established at 1 on 0.75, which is the existing slope throughout the whole extent of the Delaware Breakwater.

Exterior slope of the superstructure.—In building this slope on the ice-breaker it appears to have been the intention to give it an approximate inclination of 1 on 2. There are, however, several sections where the slope is very nearly 1 on 1, and one section where it is even steeper. At these points the wall has stood very well; and it has therefore been inferred that if the slope were carefully formed with very large stones at an inclination of 1 on 0.75, it would be able to withstand the forces of the sea. This inclination has been adopted for the completion of the work at the Delaware Breakwater, and is assumed for this project.

It is, of course, understood that the cross section thus determined is adopted for the estimate only, and is subject to modification from experience obtained during the progress of the work.

It is assumed that the substructure will be constructed below the plane of rest by depositing the ordinary run of quarry material from hopper barges; and above that plane by placing the material, with steam-derrick barges, the larger stones to be on the exterior with their longer dimensions approximately perpendicular to the axis of the work.

The superstructure will be built with a traveling derrick or with the steam-derrick barges.

The following estimate is based upon the assumption that sufficient funds will always be available for the efficient and economical prosecution of the work. Should this not be the case, the cost will be increased.

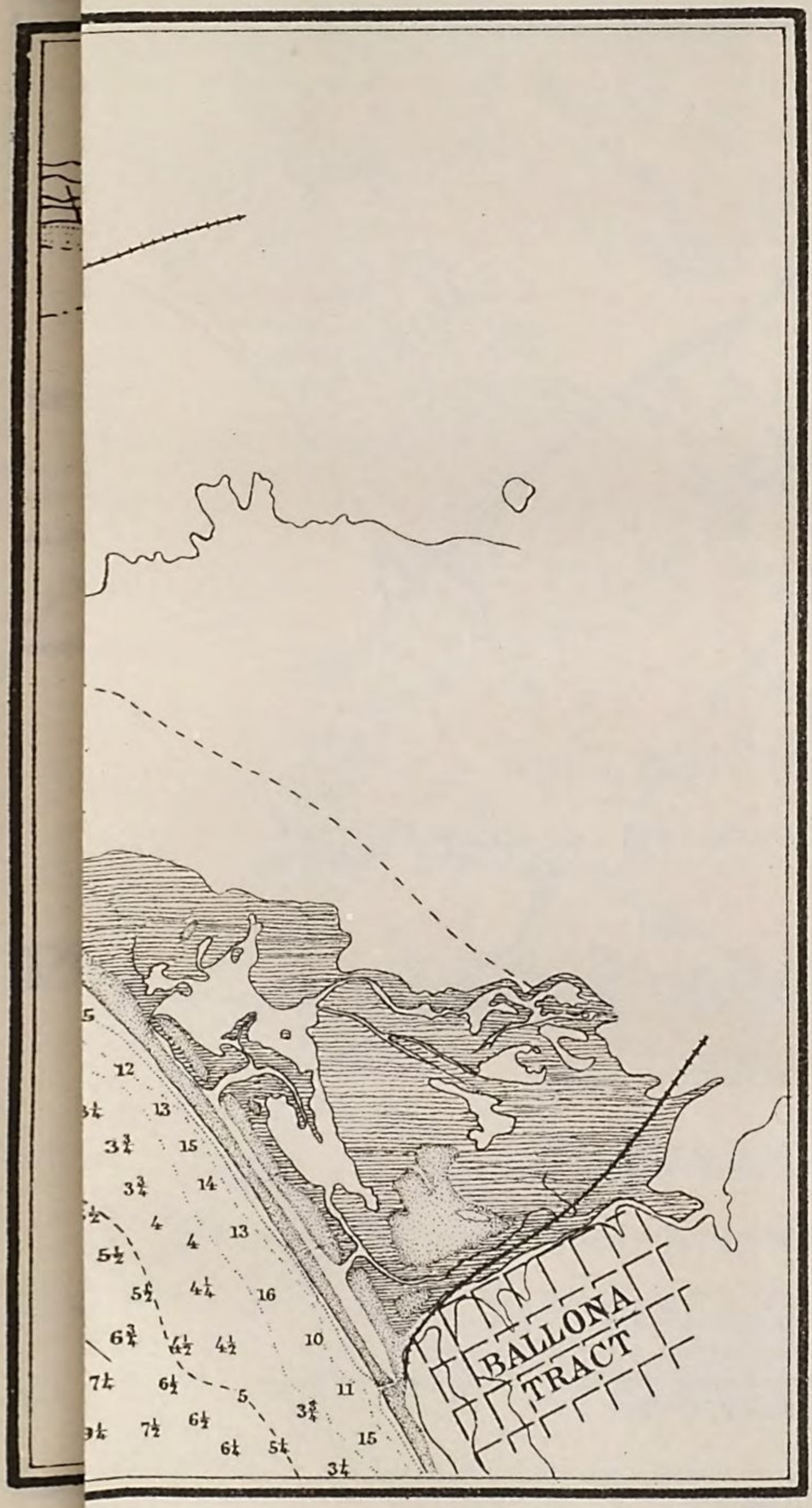
Estimate.

Substructure—1,434,612 cubic yards, at $1.50	$2,151,918
Superstructure—178,530 cubic yards, at $2	357,060
Contingencies, 15 per cent	376,346
Total	2,885,324

The papers enumerated below accompany this report as appendices.
Respectfully submitted.

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.
HENRY M. ROBERT,
Lieut. Col., Corps of Engineers.
PETER C. HAINS,
Lieut. Col., Corps of Engineers.
C. W. RAYMOND,
Major, Corps of Engineers.
THOS. H. HANDBURY,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.



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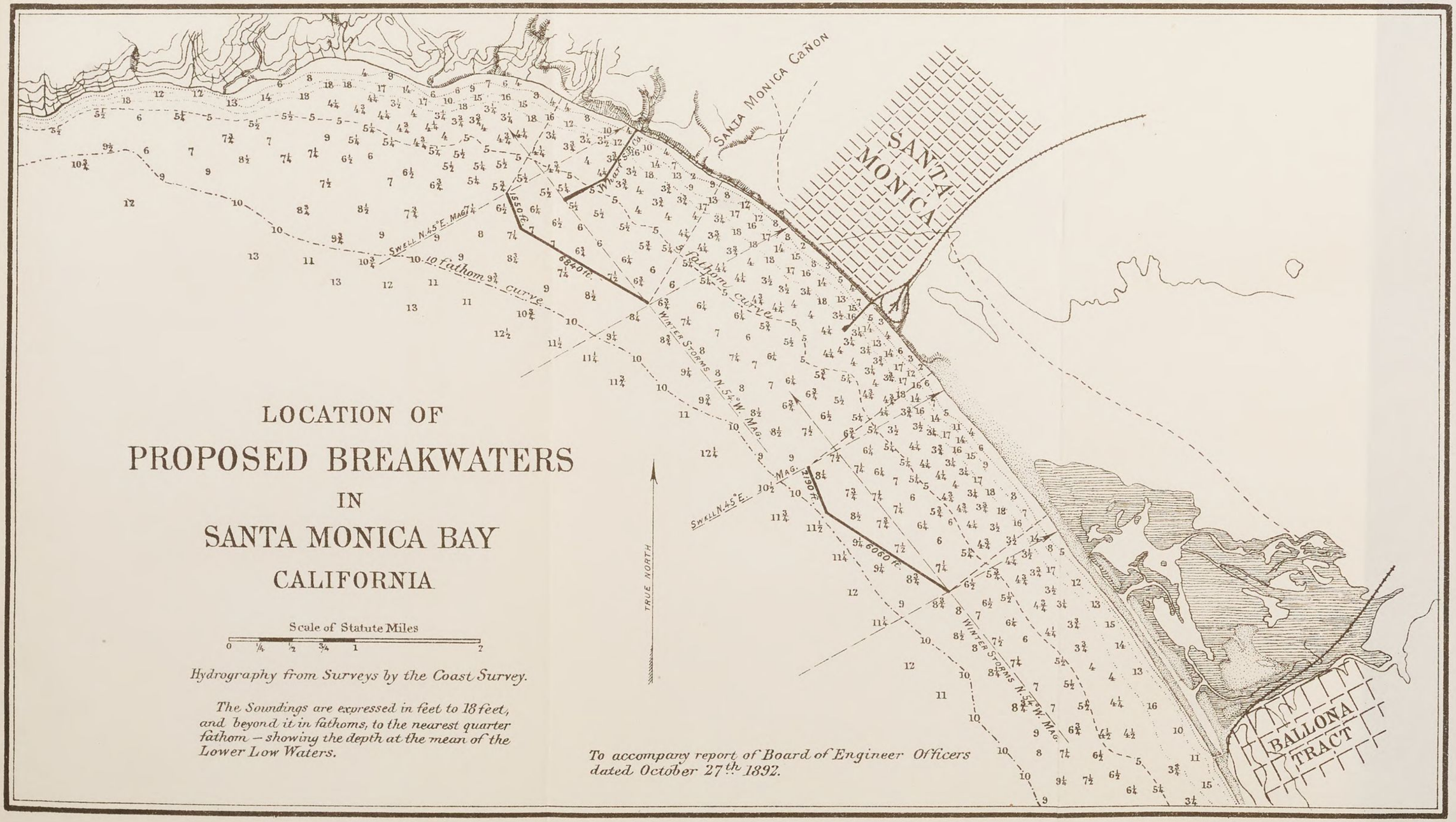
LOCATION OF
PROPOSED BREAKWATERS
IN
SANTA MONICA BAY
CALIFORNIA

Scale of Statute Miles

0 1/4 1/2 3/4 1 2

Hydrography from Surveys by the Coast Survey.

The Soundings are expressed in feet to 18 feet, and beyond it in fathoms, to the nearest quarter fathom — showing the depth at the mean of the Lower Low Waters.



To accompany report of Board of Engineer Officers dated October 27th 1892.

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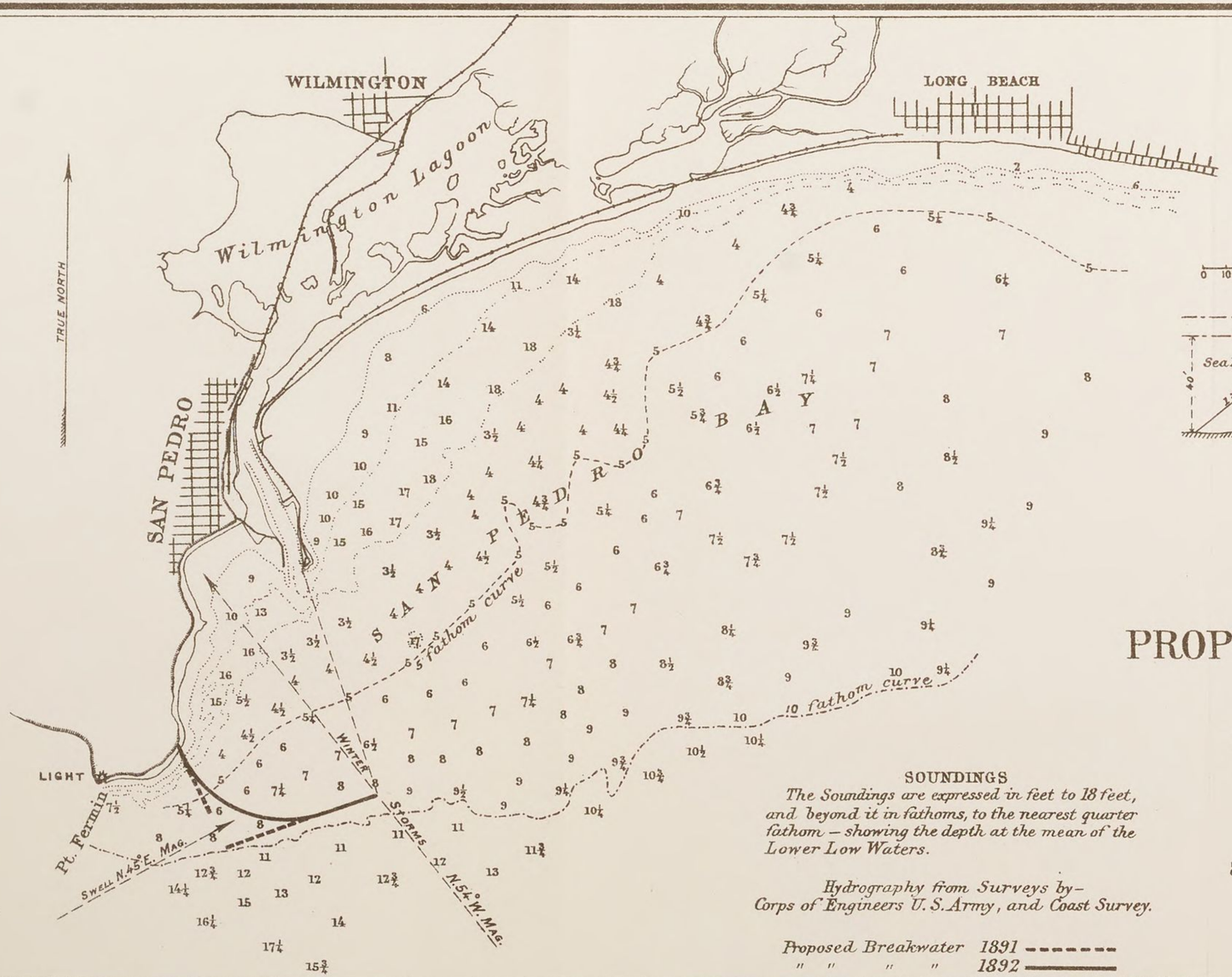
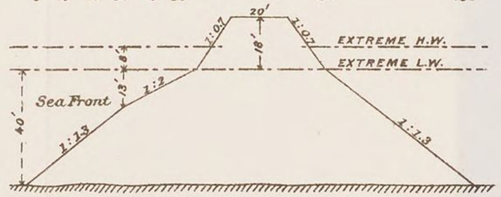


Cross Section of Breakwater

Scale of feet

0 10 20 30 40 50 100 150



LOCATION OF PROPOSED BREAKWATER IN SAN PEDRO BAY CALIFORNIA

Scale of Statute Miles

0 ¼ ½ ¾ 1 2

SOUNDINGS

The Soundings are expressed in feet to 18 feet, and beyond it in fathoms, to the nearest quarter fathom – showing the depth at the mean of the Lower Low Waters.

Hydrography from Surveys by– Corps of Engineers U. S. Army, and Coast Survey.

Proposed Breakwater 1891 - - - - - - -
" " " " 1892 ———

To accompany report of Board of Engineer Officers dated October 27th 1892.

H Ex 41 52 2

MAP OF
SANTA MONICA AND SAN PEDRO BAYS
and the adjacent country
CALIFORNIA

Scale of Statute Miles

4 3 2 1 0 5 10 15 20

To accompany report of Board of Engineer Officers dated October 27th 1892.

H Ex 41 52 2

APPENDICES.

1. Stenographic report of hearing held at the rooms of the Chamber of Commerce, Los Angeles, Cal., September 8, 1892.
2. Letter from R. H. Thompson, vice-president Redondo Beach Company.
3. Letter from K. H. Wade, general manager Southern California Railway Company.
4. Letter and memorandum from W. R. Corson.
5. Letter from Capt. A. A. Polhamus.
6. Letter from Capt. E. Alexander.
7. Letter from Capt. J. A. Muir.
8. Memorandum by Prof. Davidson, U. S. Coast and Geodetic Survey.
9. Letter from William Hood, chief engineer Southern Pacific Company.
10. Letter from William Hood, chief engineer Southern Pacific Company, submitting memorandum by Commander Taylor, U. S. Navy.
11. Letter from W. D. Gelette, submitted by William Hood, chief engineer Southern Pacific Company.
12. Letter from William Hood, chief engineer Southern Pacific Company, submitting statement of merchants.
13. Letter from T. B. Burnett, general manager Los Angeles Terminal Railway Company, inclosing petitions.

APPENDICES.

1. Stenographic Report of Hearing Held at the Rooms of the Chamber of Commerce, Los Angeles, California, September 8, 1892, in the Matter of the Location of a Deep-water Harbor in San Pedro or Santa Monica Bays.

Chamber of Commerce Rooms,
Los Angeles, Cal., Thursday, September 8, 1892—10 a. m.

Mr. C. M. Wells. This meeting will please come to order. I will say, as a preliminary, that the meeting has been called at the suggestion of this board of engineers, and has been called in the rooms of the chamber of commerce because the chamber of commerce is representing the general good of southern California. And it is proper to say that, in this matter of selecting the best site for a harbor upon this coast at one of the points named, the chamber of commerce is not taking a part, is not throwing its influence in favor of any one position as against another. Los Angeles city and the surrounding country desires a deep-water harbor, and we all understand that it is the effort of these eminent engineering officers to determine which is the most suitable point for the construction of such a harbor, and where it can be constructed at the least cost. So that the chamber of commerce is simply aiding these engineers in collecting their information; and that is what this meeting is for. Col. Craighill, the president of the board, will state to you in detail the kind of information he desires, and how he desires it presented; and the meeting will be entirely under the direction of the Board of Engineers. It is not necessary to say anything further. We all know how anxious we are as a community, and how needful it is to have a deep-sea harbor of this kind, and the great benefits that will accrue to this section of the country from its construction. Gentlemen, this is Col. Craighill, the president of the board.

Col. William P. Craighill. Gentlemen, the president of the chamber of commerce has already stated the object of the meeting, so that it is not necessary for me to do so, I will be much obliged to him, however, if he will read for me the law under which the board is acting.

Mr. Wells. "The Secretary of War is hereby authorized and directed to appoint a board of five engineering officers of the United States Army, whose duty it shall be to make careful and critical examination for a proposed deep-water harbor at San Pedro or Santa Monica Bays, and to report as to which is the more eligible location for such harbor in depth, width, and capacity to accommodate the largest ocean-going vessels, and the commercial and naval necessities of the country, together with an estimate of the cost of the same. Said Board of Engineers shall report the result of its investigations to the Secretary of War on or before the first of November, eighteen hundred and ninety-two; and ten thousand dollars, or so much thereof as may be necessary, are hereby appropriated for said purpose."

Col. Craighill. You will observe, gentlemen, from the terms of the law, that there are two points of view from which this matter is to be investigated. One is the commercial point and the other is the engineering point. To-day we wish first to take up the commercial aspect of the question; that is to say, we will be glad, as the first object of inquiry, to have information which will guide us in coming to a conclusion as to the need of a harbor of refuge anywhere within the limits of San Pedro or Santa Monica bays. That is the first point of inquiry, and the general subject in which we are all interested. And, although you are strangers to me, I have no doubt that Los Angeles is particularly interested, and is largely represented here. After discussing the general subject, there are some points with reference to the matter of engineering about which we desire information from this assembly; and that is, the character of the holding ground throughout these bays, the direction of the wind and currents, and things of that sort, which will have an influence upon us in coming to a decision as to this question. We will begin, then, by the discussion of the general subject; and, after that has been sufficiently reviewed, we will take up the separate localities in order. And I will take the liberty of designating

the order in which their respective claims shall be presented As San Pedro is the oldest place which has claims, we will hear first from San I edro after the general discussion; next, we will take up Santa Monica, and, third, Redondo; and then any other points that may wish to present their claims. After these have been discussed before the board, as some persons may wish to reply to others who have spoken, advocating special interests, we will go over these places again in the same order, so that every locality will have an opportunity to be heard twice and of replying to the others. Now, Mr. President, if you will indicate persons in succession, as they are all strangers to me, we will hear some one on the general topic of the need of a harbor in Santa Monica or San Pedro bays.

Mr. WELLS. As I stated before, colonel, the chamber has laid out no programme, and has not attempted to inform itself of what will be advanced here to-day. It has simply called on different localities to make their representations. And, therefore, the order of presentation will be entirely in your hands If there is no objection then, I will call for the general presentation of the subject by anyone who will volunteer. The floor will be open now to anyone who wishes to talk upon that topic.

Mr. MERICK REYNOLDS. Is Dr. Widney present? He is a speaker from the San Pedro point.

Mr. J. P. WIDNEY. I was not aware, gentlemen, until my name was called, that I was to speak for San Pedro in this matter. But then I have the facts at my fingers' ends——

Mr. WELLS. Gentlemen, this is Dr. J. P. Widney, who has given lots of time to the investigation of this question.

Col. CRAIGHILL. You understand, doctor, we wish a discussion as to the general subject.

Mr. WIDNEY. I was going to ask what you wished.

Col. CRAIGHILL. The needs of this coast for a harbor at either Santa Monica or San Pedro bays.

Mr. WIDNEY. Is there a large map here, gentlemen, and then I can show you what we desire?

Mr. WELLS. There is a large map, but it is out of reach.

Mr. WIDNEY. You can see this. The first point is this: There is a large coastwise commerce between San Francisco and San Diego, a distance of 400 or 500 miles, which hugs the coast closely, as the nearest line is along the coast and the prevailing wind is an on-shore wind. The winter storms, the southerly storms, are all shore storms. The vessels hug the coast line. They have no refuge between San Diego and San Francisco from a southerly gale during the winter. This fact endangers commerce greatly. They can run up to Catalina Island, but that compels them to leave their anchorage and go out to sea. This shows the importance of a harbor of refuge for our coast commerce.

There is coming, however, or there is even now, a very heavy commerce from abroad—a deep-sea commerce—in addition to the coast trade. That does not come to us from San Francisco, but from all parts of the world. The vessels come direct to these southern ports. They unload and load and go abroad again. During the winter these vessels have no shelter at any one of these points where they can lie at port. In the beginning of a gale they are exposed at San Pedro, as the wind generally commences in the south, and that gives them the swell at that point. As the storm works around it works into the west, and then Santa Monica gets the full force. So that a vessel has no protection at either point during a southerly storm in the winter, San Pedro getting the first of it; and during the latter part of the gale, by reason of the wind veering around to the west, Santa Monica is exposed. There have been times when vessels at San Pedro have dragged from their anchorage. There have been times when, during the latter part of the storm, the waves have been high enough to compel them to take their railroad trains off the wharf at Santa Monica for fear the wharf would be destroyed. That shows the way storms affect the two points. From the ordinary westerly winds of the summer all of these points of headlands give a certain amount of shelter, as at San Pedro and Santa Monica and Port Harford and at Santa Cruz.

So much for the needs of the present commerce. This would justify the expenditure of a very fair amount of money, possibly amounting to many millions.

There is rapidly coming, however, gentlemen, a change for the better in the commerce of this coast. With the building of the Nicaragua Canal the trade of the whole Pacific coast will he revolutionized. As it is now, sailing vessels going around the Horn find it easier to go out into mid-Pacific and strike the trade winds and reach San Francisco from the southern ports. That is the reason why San Francisco has remained for so long the metropolis of the coast. Vessels could make that point more easily. With the building of the Nicaragua Canal this changes, and the commerce would be transported, as it is now to the canal of Suez, by means of propellers. These propellers, by reason of lighter draft, would hug the coast coming north. At

present, if they want to reach us with freight, they go right past our ports, and, if they go to San Francisco, the freight has to be shipped back to us. With good harbor facilities those vessels could discharge here, while they can not do so now, except during certain seasons of the year.

Another fact: San Francisco lies opposite the highest point of the Sierra. They cross the Sierra with the Central Pacific at an elevation of about 7,000 feet. I have forgotten exactly what it is, but it is about that. Unfortunately for them they lie opposite the highest point of the great backbone of the Sierra, while it drops in altitude going north and south. It is that fact that has forced the new railroads south and north of San Francisco. They go north and strike the easy grades at Puget Sound, and the mountain range coming south drops off at San Diego. We cross here at an elevation of about 2,560 feet, I think, at the San Luis Pass. These easier grades bring the roads southward. With the building of the Nicaragua Canal these railroads afford quick and easy communication from our southern Calfornia ports for the interior traffic. They flank the Sierra on the other side, and the supply ports for the whole of that interior of the country will be, and should be, not San Francisco, but some one of these southern ports, where you have the shorter hauls for vessels coming from Nicaragua and then shorter railroad lines and lower grades.

Now, it is that commerce of the future rather than the present commerce that we are anxious about, and that is the reason why it seems it would justify the Government in spending, not simply enough to accommodate our present local coast commerce, but the commerce of the future, for the time is coming soon when the Government will need a good port on the coast of southern California. The supply points of all these lands in the interior will be from some one of these southern California ports. This lifts the project out of the ranks of mere local improvement into a great public improvement for national purposes. Some point more desirable than San Francisco will become necessary for Nevada and Utah and that great interior plateau to receive their supplies from, connected by shorter lines of railroad and having lower grades than is possible from San Francisco. It is this commerce we are anxious about as well as the present. We could get along for the present without a great deal of bettering of our accommodations, but the commerce of the future can not be accommodated, except with better water facilities than we have now.

There is another thing: When that commerce comes to us, it means that the vessels coming from the Nicaragua Canal and other distant ports must have places to repair and reëquip. They can not put freight right down in the surf and run it ashore; but it must be in sheltered water. It means a certain amount of shipbuilding as well as repairing, and all of these things must be accommodated.

With regard to the country immediately around here and back of us I suppose you understand. It is a certainty that in the six southern counties of California there will be a population within the next twenty or thirty years running up to 2,000,000 or 3,000,000. We have the country to support them and make them rich. We have back of these low passes the Arizona country and the Nevada country and Salt Lake, and they must all reach the coast at this point.

For these reasons we think money should be put here not only to make a local harbor, but a deep-sea harbor. This will have to be one of the great shipping points of the United States.

I believe, gentlemen, I have said all I desire on the deep-sea harbor question at this point. Anything with regard to the localities comes later on in the discussion.

Col. CRAIGHILL. Yes, sir.

Mr. WELLS. There is opportunity for others upon the same line or other points which they may wish to present.

Mr. J. DE BARTH SHORB. Mr Chairmau.

Mr. WELLS. Mr. Shorb, gentlemen.

Mr. SHORB. I don't know, Mr Chairman, that I can add much to the remarks of Dr. Widney, who has preceded me. Of the necessity of a deep-sea harbor, possibly from a practical standpoint and surely from a personal one, I have a deeper interest than even Dr. Widney has. I have for years been the largest producer of wines and brandies in the southern country. It is a freight that necessarily requires low rates of transportation. The freight from the north, as Dr. Widney has remarked, has been largely made up of lumber, with a few other things, such as coal, which possibly may come in in another direction. I will simply say that so far as that one product is concerned, of all which is blended with the great prosperity of this country and which will finally cover all of the dry hills of this country, the wine industry possibly is the most prominent, and needs facilities for cheap transportation to market. I was offered in San Francisco, last August a year, a charter to Havre, France, for 4 cents a gallon. I presume you want the practical presentation of this thing. I have been paying the railroads from 10 to 13 cents per gallon for transportation across the continent. France last year imported into her country not less than 288,000,000 gallons of wine, coming principally from Algeria, Spain, and Italy. If you multiply 288,000,000 gallons by 10 pounds you have the enormous tonnage which that one product

amounts to. I think I can venture to say that it is greater in one year than all the tonnage that has been received here at San Pedro or Santa Monica. Commerce certainly is engendered in the wants and necessities of the many.

Dr. Widney has very properly remarked that the day is coming when probably 3,000,000 or 4,000,000 of people will have congregated in and around the country tributary to this point. Now, so far as the general question is concerned, we want to be independent of San Francisco. We are entitled to it. The Government should have it. The harbor should be located, it seems to me, at a point where fortifications also could be built. Furthermore, I shall state that Governor Stanford himself said one time in Sacramento that if the Government would permit him to finish the Southern Pacific Railroad system, the Government might take the Central Pacific. They were rather tired of operating that road because of the Sierra Nevadas. During further conversations with Governor Stanford, and also with Mr. Huntington, they both dwelt upon the necessities of having some harbor here where the freight might come direct from the Occident, be carried over their lower grades here in the south to some point on the Atlantic Ocean, and then shipped by a line of steamers to Europe. They are probably two of the greatest authorities I can quote as to the necessity of a harbor here at Wilmington or at Santa Monica, as the case may be. I don't think I have anything more to offer, gentlemen.

Mr. WELLS. Are there others to be heard on that topic? If there are no others who wish to occupy the time, I desire to allude to one phase which has not been touched upon. We know the Government has appropriated a large amount of money, or has promised to appropriate a large amount of money, for the improvement of Galveston Harbor. We in this community feel that the construction of this harbor on this coast will be the complement and fitting completion of the harbor at Galveston, as it will make the shortest line of rail traveled between the Pacific Ocean and the Atlantic Ocean on the Gulf of Mexico, within the United States territory, that is possible, and over the lowest grades. We feel that with the construction of the harbor here the money that has been appropriated for the construction of Galveston Harbor will be in a greater degree available; that it will be appropriated to a better purpose, and that it will contribute to build up that section of the country and this section also. I allude to it simply that your minds may fasten upon the importance of connecting the two.

Mr. WIDNEY. Mr. Chairman, I think there is a misunderstanding, slightly. The invitation was for San Pedro people to speak, and I fear the others feel barred out.

Mr. WELLS. I don't think the topic was confined to any people.

Mr. WIDNEY. I thought possibly they feared the floor was given to San Pedro.

Col. CRAIGHILL. The idea was, after the general subject had been discussed, that each particular locality would have an opportunity to speak for itself, and I simply indicated San Pedro first, because it is the oldest port that we know of in this section of the country, and proposed next to take Santa Monica, which has recently come to the front, and then Redondo, which I understand to be the youngest. We take them in point of age. If the general subject has now been exhausted we would be glad to hear from the San Pedro people.

Mr. WIDNEY. I don't know, gentlemen, whether I shall speak again for you, or have you somebody else?

Several—Dr. Widney.

Mr. WIDNEY. There was no programme arranged beforehand, Mr. Chairman, and I have no knowledge I was to speak for the San Pedro people; but it happens I have been in that work from the beginning. I believe I have prepared personally every document that has gone to Congress in nearly eighteen years about that harbor, and have known all the engineers, so I have kept myself well posted about the harbor. It is not necessary to give the scientific facts, because those you get elsewhere. You will hardly depend on the newspapers or our statements here for the facts you want.

Col. CRAIGHILL. We are here in the commercial aspect of the question of the necessity

Mr. WIDNEY. That is illustrated by an incident that occurred the other day of a gentleman making the statement about the anchorage at San Pedro and the shoaling; and I have the Government charts for thirty years that show no shoaling whatever.

Coming to the commercial point I shall speak of only one thing, as I think all the information you want on other branches is contained in the circular or the statements which will be filed with you in writing by the San Pedro people. There is one point, alone, however, I shall speak upon. In looking to the accommodation of the commerce of the future it is a question of how much water frontage we shall need. It is not simply a question of 1 mile or 1,000 feet, but what will accommodate the commerce of the future. In the reports made by the board which examined this question about two years ago, they estimated—I can not give the exact number of feet, because I loaned the copy which I had and it has not come back, otherwise I should have had it with me to-day—but they estimated about 4,000 to 5,000 feet in

length of breakwater at either San Pedro or Santa Monica, at a cost of about $4,000,000.

Now, the commerce to be accommodated is not simply a deep-water commerce. It is a shoal-water commerce as well; it is ship-building, it is ship-repairing; dock yards; all of these things. Now, those industries must have shelter from the swell of the sea. We are utilizing at San Pedro to-day, the gentlemen inform me, between 4,000 and 5,000 feet of water front, and we are using it all. The estimates for the breakwater at Santa Monica were for a breakwater of 4,000 to 5,000 feet in length. It might be supposed that would shelter 4,000 or 5,000 feet of water front; but my understanding is, however, that when you take a certain length of breakwater out about three-fourths of a mile to a mile, it will not shelter that amount of water front along the shore, because you have the angling in of storms that will practically make it shelter much less water front. I speak of this as it seems to me, being a layman and not a scientific man of your profession. It seems to me that breakwater would probably not protect from the angling storms of the winter because they come from both quarters, over half that amount. But granting the full amount of 4,000 to 5,000 feet when the $4,000,000 have been expended it would make about 5,000 feet of breakwater, and we then have sheltered only as much water front as we are using to-day at San Pedro. How about the extra amount we want?

Another fact: You are building a deep-water breakwater, at a cost of millions, to shelter, not big seagoing vessels, but schooners and smaller craft, and all these shipyards. Well, it is a very costly thing to do. Looking at the business at other ports, and the water front they utilize, and what we have, it seems to me any project that has in it less than from 5 to 6 or 7 miles of water front is not the project for the future.

Now, if that water front is secured at the open roadstead at Santa Monica—and I am not speaking invidiously, but simply giving facts—it means 6 or 7 miles of breakwater, and every mile of that costing about $4,000,000. Now, it is questionable whether we, as a people, can expect the Government to put in from $24,000,000 to $30,000,000 for a harbor for us. I doubt if we ever get it. Yet that amount will be necessary to shelter the water front the commerce of the future will have to have for its shipyards, and shoal-water shelter, and everything of that kind. The peculiarity of San Pedro is this, that we have already developed a large interior harbor, which will have about 16 feet of water, at the lowest calculation, through the bar, with deeper water inside.

Mr. SHORB. Doctor, I don't want to interrupt you, but, if you will excuse me, probably I can give you the information you desire [handing document to Mr. Widney].

Mr. WIDNEY. I have that and loaned it to some of my San Pedro friends and they failed to return it. Thank you. Now, at San Pedro the peculiarity is this: We have already an interior harbor which has about 4 miles of water front—I will speak generally, but I think I am correct—at least 4 miles of water front, that will give at the lower end a depth of about 20 feet at low tide and at the upper end about 6 feet at low tide. It has back of this channels running in all directions that are low washes. The matter in them is so soft that the engineer told me you could take an iron rod and stand it up and it would sink down 10 or 12 feet. Those channels ramify in all directions and a little dredging will clean them out. So that you have there at no expense to the Government anywhere from 6 to 10 miles of water frontage that does not come into the calculation for the outer breakwater.

Now, the actual amount of deep water necessary is very small in any port. I expect you could take the San Francisco commerce to-day and put the deep-water vessels in half a mile. It is the greater number of light-draft vessels that make the commerce. At San Pedro, instead of having to build a great many miles to accommodate these, you have simply to build enough deep-water breakwater to accommodate the few deep-sea vessels, while we have already the interior harbor, under the Government appropriation, that takes everything under 20 feet.

Col. CRAIGHILL. Before you finish your remarks, doctor, give us an idea of the character of the vessels which you use on this coast; whether sailing vessels or steamers; and their tonnage. Their draft rather than tonnage; their draft.

Mr. WIDNEY. All right. We are using——

Col. CRAIGHILL. Not at this particular moment, necessarily, but before you get through.

Mr WIDNEY. I can answer now just as well. We are using both. The vessels that come to us from abroad are largely sailing vessels, because of the distance. With the building of the Nicaragua Canal they will be steamers. Captain, how much do the lumber vessels draw?

Capt. DAVID WELDT. The schooners draw 12, 14, 18, and as high as 20 feet.

Mr. WIDNEY. Those vessels nearly all run inside now, don't they?

Mr. WELDT. Yes, sir.

Mr. WIDNEY. I believe all the vessels come in.

Mr. WELDT. All the vessels come in; anything less than 18 and 19 feet, they all come inside.

Mr. WIDNEY. And lie right at the wharf. The coast steamers running to sea draw how much, Capt. Weldt?

Mr. WELDT. They draw all the way from 18 and 20 feet of water.

Mr. WIDNEY. In my last trip up on the *Santa Rosa* the officers of the vessel told me—that is the largest and longest vessel—they said: "We could take the vessel right into the wharves if the channel was a little straighter. It is not quite straight enough through the bar." They said they could run right in now—the largest vessel that comes to us—if the channel was a little straighter; and that will be straightened out with the next year's work. The *Corona*, which is next in size, comes right in. In sailing vessels we have vessels drawing 20 feet of water that come to us. There are, therefore, a small number of vessels that would have to be accommodated by a deep-sea wall. The estimates given me by the engineers in San Francisco show they would be able to shelter about $1\frac{1}{8}$ miles, between Dead Mans Island and the point beyond, of deep-sea water, with the proposed work, at a cost of about four millions. Now that runs out to waters that are 40 and 50 feet deep, as you understand by the drafts you have. You would simply have to ask the Government to pay $4,000,000 there to give us about a mile and a quarter there of deep water, which we need. And then we have the harbor already built for the remainder of the commerce of the future, and for our ship-building and ship-repairing. The great point commercially that is in favor of San Pedro is this, that the Government, at the cost of four millions, will accommodate a commerce and ship-building and repairing which would take from twenty to thirty millions at any other point, because we have the shoal harbor already and only have to protect the deep-sea vessels.

Now, there is one point more, gentlemen, if you will excuse me for one moment. It is partly for the board, and also for our own citizens. If we go ahead and improve the Santa Monica Bay, say a mile in length, it means this: We can accommodate there our deep-sea vessels, but we have to divide our commerce. All the remainder of it has to go to San Pedro for the lack of room. We will have to take our schooners and ship-building to San Pedro. That means two seaports, and not one, and a divided commerce, and a divided strength. For instance, you can take a large river frontage with miles of deep water, and it will get centered down to one point. It is found more economical to do that. It is cheaper for capital to get to one point and get everything there. It is cheaper for the country. Now, if we have to divide the commerce of the future, as we should then be compelled to do, and put our light-draft craft at San Pedro and our deep-sea vessels at Santa Monica, then we are compelled to build two harbors instead of one, and that is not good economy. It may not mean much to the Government in their outlay, but it means millions to us in our outlay. For this reason alone, and without touching upon other matters which will be presented in written form, it seems to me that, looking at it from the Government standpoint, and from ours also, the more economical point to select is San Pedro. The other facts you have on file.

Mr. WELLS. The Colonel wishes to continue the presentation from San Pedro, if there are other facts to be presented.

Mr. SHORB. Now, Mr. Chairman, I think some of the facts that the people of Wilmington and San Pedro wish to present to your honorable board is this report of the late Board of Engineers. I think that is their best brief. I propose to be very brief in my remarks, because Dr. Widney has already presented them so well and carefully that there is very little more to be said. Certainly at this point, before charts, before coast surveys, before anything in the way of shipping facilities were afforded, the vessels that were coming here and trading selected that point of all others as the safest point for them to land. The long line of kelp reaching out from that rocky bottom, and the certain amount of protection afforded by the topography of the land around there, probably suggested that point for them to land and discharge and take on their cargoes.

I will say this now. Possibly the question comes up of comparison between Santa Monica and San Pedro. I was guilty of writing a letter some few days since, in which I animadverted upon the proposition of the Board of Engineers calling to their assistance the general public. And to your honorable board I wish to apologize, because I didn't exactly understand the idea at the time. I thought then that a matter of so great moment to our people should be left to a corps of gentlemen whose life, whose education, whose experience would lead them to proper conclusions, against newspapers, against individuals who had private interests to subserve, against railroads, against even railroad engineers. This is a distinct business to which you gentlemen have given a life study; and I desire very publicly to state here it has been my proud privilege to know a great many gentlemen connected with the Engineer Corps of the U. S. Army over a great many years. I believe you are a body of gentlemen that haven't your peers in the United States of America, and, whatever your decision may be in relation to this point, in behalf of myself, in

behalf of the people of Wilmington and San Pedro, we bow absolute submission to your judgment.

There are some matters that I think ought to be given public expression to here. I do not speak with any feeling or any unkindness, but there are some things that look rather peculiar, and that we, as citizens, have a right to inquire into. During all of these years since Gen. Alexander, Mendell, and those gentlemen have been employed in completing the improvements at San Pedro, the advantages there have principally been to the Southern Pacific Railroad Company. I have had long conversations with Governor Stanford and Mr. Huntington. They were not in confidence, or certainly that confidence would remain inviolate. Both of those gentlemen have time and again said—and I know they have said the same thing to others—spoke of the necessity of a breakwater at Wilmington. That was their only point. Gov. Stanford told me himself that he proposed to make it the work of his Senatorial life to secure for that point such appropriations as may be necessary to furnish what was desired. He even went so far, after having acquired wharf privileges at Santa Monica and building and using a wharf, to pull it down. I think it is a privilege and a right for us to inquire now: How is it that those gentlemen think all that has been done down here has been wasted money, and that the only point for the Board of Government Engineers to select is some point down here in the gorge of Santa Monica, which, according to common report—I don't state it as a fact, and I have no doubt these gentlemen will answer that proposition—is to work to their exclusive advantage, if built?

Now, Mr. Chairman, there is a gentleman here who for thirty-two years of his life has been navigating the bay of San Pedro, who was intimately acquainted with it long before the Government spent one dollar in the improvement of that harbor. He is a man who has no interests to advance, who has no land to be improved, either at Santa Monica or Wilmington. He is a man who has the confidence of the Board of Engineers and of those who have been immediately in charge of that work, and who has done a great deal of the work himself for them. I refer to Capt. A. A. Polhamus, now at San Diego, who knows more about that harbor, about the holdings or about the anchorage, than probably any other man in this community; and I should like to have the privilege, sir, of presenting him to you, and then I shall close my remarks. If Capt. Polhamus will come forward I think, gentlemen, he will give you all the information that is desired.

Mr. POLHAMUS. Mr. Chairman, I think Mr. Shorb is a little premature, because the question under discussion now is with reference to commerce, and I think I will come later on.

Col. CRAIGHILL. No; we are discussing the merits of San Pedro now.

Mr. POLHAMUS. I beg your pardon, then. Does anchorage come under discussion?

Col. CRAIGHILL. Yes.

Mr. POLHAMUS. I first went into the employ, at San Pedro, of Gen. Banning, the father of the present transportation company, in 1860, and shortly afterwards took charge of the lighters and everything pertaining to the water anchorage outside. I remained with him until he transferred his interests to the Los Angeles aud San Pedro Railroad Company, and from them to the Southern Pacific, and then back to Gen. Banning again, remained with him until 1884, and then I ceased my connection with him.

With relation to the anchorage I will state that San Pedro is known among shipping men as one of the best holding grounds on the coast. Our lighters there always use small anchors and very heavy chains, as anybody can see by looking there to-day, for the reason the anchors never drag; and when anything went ashore it was simply because the chains parted. A small anchor always held, so, necessarily, the chains always parted. You will find in the rules of shipowners that our chains are out of all proportions to the weight of the anchor. The *Cooper*, *Adelaide Cooper*, the *Amelia*, and the brig *Calor* were all wrecked while I was at San Pedro, everyone of them leaving their anchorage in San Pedro and parting their chains. The bottom there is a loose rock—not a ledge, but a loose rock—on which kelp grows. There was a vessel at anchorage there in a gale of wind. The captain found he was dragging his anchor, and was much surprised to find the ship was drifting and the chain not broken, and he called me aboard, and the fluke in the anchor had turned straight back in the line of the shank of it, showing how strong the holding was to turn the anchor in preference to dragging over the ground. Now, speaking of the inner harbor——

Col. CRAIGHILL. You have been speaking of the outer harbor?

Mr. POLHAMUS. I have been speaking of the outer harbor. Now, the inner harbor. There is not near the advantage taken of that harbor that there might have been. Before I left there in the '70s I brought coal vessels over that bar, bringing about 1,300 tons of coal, 13 and 14 feet draft; and every vessel that could come in with coal came inside. Shortly after that an edict came forth that everything that carried coal remain outside. The bark *Valparaiso* loaded in that inner harbor with

wheat. Since that date all the wheat has been put aboard on the outside. And Col. Mendell said to me one day: "This harbor is the only place south of San Francisco where the Government has spent one cent, and it is the only harbor south of San Francisco where a wagon can't get alongside of a vessel." You can't go into that port and charter a vessel and load it with produce without paying tariff to somebody else to put it aboard. They won't allow you to do it yourself. I believe that is all I have to say to you.

Col. CRAIGHILL. Captain, some of the other members of the Board want to ask you some questions.

Lieut. Col. HAINS. How much area does that holding-ground bottom extend over?

Mr. POLHAMUS. It extends in a direct line nearly due south from Dead Mans Island. After you pass below that land you have then the same formation you have over at Santa Monica—sandy bottom, where an anchor won't hold near as well. When you get outside the kelp line the bottom changes from mud and stone to sand. There the anchors do not hol d as well. But wherever you have muddy bottom and little patches of kelp growing around, there the holding ground is better.

Mr. WELLS. Perhaps you could indicate it on the map, so they could see that more clearly.

Col. HAINS. There is the line of proposed breakwater [indicating on a plat].

Mr. POLHAMUS. In a due south line from Dead Mans Island [illustrating on the plat]. Off this way the kelp grows in patches all through there. When you pass down over here you strike sand.

Col. HAINS. That is all to the westward of that line?

Mr. POLHAMUS. Yes, sir; all to the westward of that line. To the westward of the line it is good, and to the eastward it is sand.

Lieut. Col. ROBERT. That part is sand, and this is your rock in here [indicating].

Mr. POLHAMUS. Yes, sir; and I would state if that is called in question I can bring oaths from—well, all the captains on the coast that have been there.

Col. ROBERT. Have you ever known of any case of a vessel dragging its anchor in a storm in all your thirty-eight years' experience?

Mr. POLHAMUS. Not to my knowledge, unless by lying there the anchor had been fouled and caught around the fluke, and dragged that way, stern first. Where care has been taken to keep the anchor clear, I have never known an instance of it. There may have been, but not to my knowledge.

Col. HAINS. Another point, captain, before you leave, and that is from which direction do you get the greatest swells? After what storms?

Mr. POLHAMUS. With southeast winds; this point, between the lower end of Catalina Island and Point San Juan. The winds begin there and blow with very heavy violence; and when the storm shifts—it never stays long down on the lower coast—to the southwest, it swings around west and west-northwest; and when it gets around it is a sure sign the storm is broke with us. A bark lay there once drawing 15 feet of water, and she unshipped her rudder and stove her keel off in 27 feet. She was dropping 12 feet in the roll of the water. But still she held on. She never dragged. She belonged to a millionaire owner in San Francisco, and he will verify that statement, if you desire. Twelve feet under her keel in shoal water, and she never slipped.

Col. HAINS. I would like to ask you a question, based upon your observation as to the fact.

Mr. POLHAMUS. Certainly.

Col. HAINS. Whether Catalina Island affords any real protection to the harbor of San Pedro.

Mr. POLHAMUS. Oh, it does.

Col. HAINS. From what; the winds, or the——

Mr. POLHAMUS. From the winds. Not the wind, but the swell; that is, the sea swell. If you will go alongside the inside shore of Catalina Island you can land anywhere with a boat. On the ocean side you can't touch it, except with a harbor; a heavy sea swell breaking against it all the time.

Maj. HANDBURY. Does not that section of calm play out, as it were, before it gets to the shore?

Mr. POLHAMUS. I don't know as I understand you.

Maj. HANDBURY. There is a calm section. When the wind is blowing in this direction you have it rough on the other side and a calm on this side. Now, will that area of protected——

Mr. POLHAMUS. Yes, sir; I understand you now.

Maj. HANDBURY. How much of this shore, then, is protected by the calm?

Mr. POLHAMUS. Well, it modifies, as I say, the swell all around. The swell comes around Catalina and meets and blows in here, but it is modified wonderfully from what it would be. Go down to Newport and around that beach where it is not protected, you will find the westerly swell a great deal heavier; and also up to Santa

Monica and around there. Where it is not protected it is a great deal heavier. But in the summer winds it is to a certain extent sheltered. There is no westerly wind that comes in there that a vessel can't stand.

Col. HAINS. Are those southeasters usually accompanied by rain, or how is that?

Mr. POLHAMUS. Sometimes we have what is called a dry southeaster, but they are not numerous; they are few.

Maj. RAYMOND. Captain, on the map there are two lines which indicate the location of the proposed breakwater at Point Fermin. Suppose that western end was closed that is indicated on the map?

Col. CRAIGHILL. That, you understand, is the breakwater proposed by the previous Board.

Maj. RAYMOND. Suppose that was closed, would the harbor be sufficiently accessible for vessels with the direction of the wind in which they want to make the harbor? Could they get in the harbor around that side?

Mr. POLHAMUS. Yes, sir; they could.

Maj. RAYMOND. It would be almost due west.

Mr. POLHAMUS. They could haul up here [indicating] and make that entrance at any time.

Maj. RAYMOND. In your opinion, an entrance on the west side is not absolutely necessary?

Mr. POLHAMUS. It is not absolutely necessary. No, sir; it is not.

Maj. HANDBURY. Suppose you were in there and wanted to get out during one of these southeasterly winds. Could you do so if that opening wasn't there?

Mr. POLHAMUS. If you are in there and there is a southeaster, you never want to get out. Unless you are going south, with one of these southeasters you never have any desire. If there are two sides to that breakwater, you would prefer the inner side all through.

Maj. HANDBURY. Couldn't you put out in the lee of Catalina Island? And if the wind whipped around there, you would want to get back?

Mr. POLHAMUS. Yes, sir. Well, if it got worse you would hold ground or go out. But if there was a breakwater there you would want to stay inside.

Maj. HANDBURY. I was thinking more particularly about when there was a slight wind and you wanted to go to sea, whether it wouldn't be better to have the opening to go out through that way rather than beat around down against the wind.

Mr. POLHAMUS. Well, most all vessels going out there of any size, like they do in San Francisco and New York Harbor, always employ a tug to get them started. They look more upon making a harbor safe and then using a tug to get in and out. It is very seldom they depend wholly on the sails to get in or go out, in all harbors, nowadays.

Col. HAINS. They either have their own steam or else are towed out?

Mr. POLHAMUS. Yes, sir. Anything further, gentlemen?

Col. HAINS. I think not.

Mr. SHORB. I would like to have Capt. Hawthorne come forward.

Mr. HAWTHORNE. I am a shipmaster in San Pedro, five years, running there a deep-water ship, and I found the holding ground good with a 1700-ton ship. It laid there and rode out a heavy southeaster without a pound of ballast in the ship. The holding ground is good and the facilities there are good for a deep-water harbor.

Col. HAINS. Where did you lay, captain? Up here in this part that is described by Capt. Polhamus?

Mr. HAWTHORNE. Here is Dead Man's Island, right here, sir, in 7 fathoms of water [indicating]. That is all I have to say.

Mr. SHORB. Capt. Hamilton, gentlemen; on behalf of San Pedro.

Capt. HAMILTON. Do you wish to have me talk on the holding ground or——

Col. CRAIGHILL. Well, that is what we are talking about now, captain.

Mr. HAMILTON. I have been running along the coast for twelve years, and nine years of that I have been running to San Pedro steady. I have been on a steamer for the last five years for Kerckhoff & Cuzner, here in Los Angeles. Previous to that I had a sailing schooner, a large three-masted schooner called the *Challenge*, and I used to run here all the time. I have been anchored outside and run through some pretty heavy gales of wind, and I never had but one anchor down in all the time I have been at San Pedro Bay. I have never thought I wanted but one anchor. I never saw an English ship drag here. I have seen an American ship drag once or twice, but I think the anchor was fouled, the teeth filled.

Col. HAINS. Were the storms severe?

Mr. HAMILTON. The storms have been severe; lots of times when I would sooner be ashore than out there; and the vessels I have been on have never dragged, and I never had but one anchor down. I am satisfied it is good holding ground, if you don't get down here where it is sand and the anchor won't hold.

Col. CRAIGHILL. You say "down here;" how far down is that?

Mr. HAMILTON. Well, say a couple of miles down from Point Fermin. Anywhere to the eastward of that I don't consider the holding ground as good.

Col. CRAIGHILL. Within 2 miles of Point Fermin?

Mr. HAMILTON. Well, 2 to 2½ miles.

Col. CRAIGHILL. And out to what depth?

Mr. HAMILTON. You don't want to get outside of 8 or 9 fathoms. I consider the holding ground better inside of that than outside.

Col. ROBERT. Have you ever anchored in Santa Monica?

Mr. HAMILTON. Never; never anchored in Santa Monica.

Col. CRAIGHILL. If there is any other point you would like to present, captain, we would like to hear it.

Mr. HAMILTON. There is no place I know of around here, taking the places as they are left by nature, without the help of the Government at all, where I would sooner anchor and trust my vessel in than I would in San Pedro. That is, between the points named; between Point Loma and San Juan. I consider I am safer in San Pedro to-day, with it just as it stands to-day, than any other point under the same circumstances.

Col. CRAIGHILL. Have you gentlemen any questions you would like to ask?

SOMEONE. What is the safety under a west wind at San Pedro?

Mr. HAMILTON. Well, it is good with a west wind at San Pedro. The southeast wind is the only wind that we ever undertake to get away from.

SOMEONE. Well, that is the prevailing wind.

Mr. HAMILTON. The southeast wind is our heavy gales. Our westerly winds are the prevailing winds. San Pedro is safe under all circumstances with a westerly wind. A man has good ground.

Col. CRAIGHILL. How many of those gales occur in a year, captain, and at what seasons?

Mr. HAMILTON. Some years we don't have a heavy southeaster down here at all, and some years we have two or three of them.

Col. CRAIGHILL. In what season?

Mr. HAMILTON. In the winter season, from the month of November on to April, to March.

Col. CRAIGHILL. How many days do they last?

Mr. HAMILTON. Well, about two or three days down here. They last longer as you go north.

Col. CRAIGHILL. We are talking about San Pedro. About three days?

Mr. HAMILTON. Well, not as long as that, sir. Generally the weight of it is blown over in twenty-four hours. It comes around the south and due southwest and west.

Col. CRAIGHILL. When it gets around to the west you don't care.

Mr. HAMILTON. We don't care. It is uncomfortable to lay there, because the sea has not gone down. It is southerly and southeast sea, but then it is over.

Col. ROBERT. The direction of the worst swell right here would be what?

Mr. HAMILTON. This is north?

Col. ROBERT. Yes, sir.

Mr. HAMILTON. Southeast. The worst sea comes in around the south end of Catalina Island.

Col. ROBERT. Well, take that direction there. How would a breakwater here protect you, if that is the worst swell coming that way?

Mr. HAMILTON. Well, get in here.

Col. ROBERT. You would have to get in very close.

Mr. HAMILTON. Well, if you know there is something to the windward of you, you ain't as scared to get in there. If there is nothing in front of you, you want to get out here where you can get out if you think anything is going to take place

Col. ROBERT. Are there any swells coming in here that amount to anything? Take that gap there. Does that not cause trouble?

Mr. HAMILTON. No.

Col. ROBERT. Would you rather have that opening there?

Mr. HAMILTON. No.

Col. ROBERT. Have you ever known of a single case of a vessel dragging her anchors when they were not fouled?

Mr. HAMILTON. Never.

Col. ROBERT. Never heard of such a case?

Mr. HAMILTON. No; not here in San Pedro.

Mr. SHORB. Have you ever heard of one at Santa Monica, captain?

Mr. HAMILTON. My experience of Santa Monica is all hearsay.

Col. CRAIGHILL. We don't want any hearsay.

Mr. HAMILTON. It's no use in talking from hearsay.

Col. CRAIGHILL. Confine yourself to San Pedro, please.

Mr. HAMILTON. The gentleman asked me.

Col. CRAIGHILL. No questions about Santa Monica.

Mr. REYNOLDS. I would like to ask a question.
Col. CRAIGHILL. Is it regarding San Pedro?
Mr. REYNOLDS. Yes, sir.
Col. CRAIGHILL. Very well.
Mr. REYNOLDS. And that is regarding the submerged reef which runs southerly from Point Fermin. Is it not a natural protection to the present harbor?
Mr. HAMILTON. Partly; yes, sir; as far as it goes.
Mr. REYNOLDS. What is its distance? How long is it?
Mr. HAMILTON. About half a mile off from the point.
Mr. REYNOLDS. From kelp line or shore line?
Mr. HAMILTON. No; the shore is very close to the kelp line. Half a mile from the shore line.
Mr. REYNOLDS. How much water is there over it?
Mr. HAMILTON. About 6 or 8 feet at the time I was there. I was out aboard the ship that was wrecked there two or three times while she lay there.
Maj. RAYMOND. Kindly indicate that on the map for my benefit, captain.
Mr. HAMILTON. Right about here. The ship run on there in broad daylight.
Col. CRAIGHILL. Any further questions, gentlemen?
Mr. MCVICKERY. Well, gentlemen, I have been at San Pedro for about thirteen years. Seven years I have been master, which Capt. Polhamus knows, and since I have been master and when I was mate. When I was master, when I got there I always anchored, no matter how the weather was. As far as the anchorage is concerned, we never dragged and never used but one anchor off of San Pedro; never was any occasion to use any more. That is about all I can say about it. It is good holding ground, and a good harbor.
Col. CRAIGHILL. That is an opinion founded upon your own observation?
Mr. MCVICKERY. That is from experience, sir; thirteen years' running to San Pedro; pretty near steady, excepting a few trips.
Col. CRAIGHILL. Any questions you would like to ask?
Col. ROBERT. You have no experience of the other places, so as to compare them?
Mr. MCVICKERY. I was never there, sir, since I have been running. I had no occasion to go there.
Col. ROBERT. No, sir.
Col. CRAIGHILL. We have no further questions to ask.
Mr. REYNOLDS. Capt. Rasmus.
Mr. RASMUS. I have been running to San Pedro for the last five years, and always found San Pedro Harbor a good holding ground and a good place for anchors. And in the year 1887 I was a witness of the ship *America*, and also the ———; there was one chain carried away, and the *Kennedy* had his anchors fouled. It was not on account of the holding ground at all. The ship *America* was holding the chain from below, and when they thought it was all safe the chain slipped, and that is the way the vessel went ashore. I also witnessed the bark *San Luis* when he went ashore. He slipped his chain and was trying to make it sailing out, but he couldn't, and went on the beach. When a vessel parts her chain there must be good holding ground. When the holding ground is poor the vessel never parts her chain. I think it would be a very good place for a deep-water harbor or any other harbor. That is all I can say.
Mr. SHORB. Capt. Paul.
Mr. PAUL. I have been master on this coast for about twenty years, all the time on coast vessels; and I have run to San Pedro for a number of years. I always found it a nice place to go to. I have come here sometimes when a heavy wind was blowing, when you could not dream of going in to any other place on the coast, and when you got in San Pedro the vessel rested quite comfortably. And then we have lots of strange vessels that come to San Pedro, in going from San Francisco, that get dismasted, or something like that. We had a Chilean vessel last year that came down to repair, and came in there at night. It is a place you can always make in the night time. We had a vessel got dismasted at Redondo Beach and had to come to San Pedro. So I don't think there is any place better to come to than San Pedro. I have been twenty years' experienced in it.
Mr. SHORB. For the present we have nothing more to offer.
Col. CRAIGHILL. Gentlemen, the San Pedro subject is exhausted for the present; although, as I said before, there will be an opportunity for the San Pedro people to say something more after having heard the others. We will now be very glad for Santa Monica to make its case.
Mr. R. B. CARPENTER. Mr. President and gentlemen of the board: I have here the report of the board of trustees of Santa Monica that I will read or hand to the board without reading, as they desire.
Col. CRAIGHILL. We will leave it to you, judge, to decide.
Mr. CARPENTER. Well, it is not lengthy, and perhaps it will be better to read it:
"The committee of the whole of the board of trustees of the town of Santa

Monica and citizens present the following facts in relation to this locality as the most feasible point for the proposed deep-sea harbor, and invite your careful consideration of the same.

"FRONTAGE OF A DEEP-SEA HARBOR IF CONSTRUCTED AT SANTA MONICA.

"At Santa Monica there are no sloughs or swamps to interfere with or render expensive the use of the frontage protected by a breakwater. All the frontage protected would be available for wharves without piling or other expenses for the approaches.

"The business that would be conducted at present in a harbor such as proposed would be extensive. The presumption is reasonable that such business would grow, not only with the growth of the adjacent country, but also by reason of the facility of approach from the interior through the low grades of the passes, the absence of snow, and the favorable climate.

"A harbor constructed to accommodate the present business of Los Angeles could, at Santa Monica, be indefinitely extended. When we consider the large wharf frontage required for the transaction of business in good and conveniently located harbors, say as at San Francisco, 10 or 15 miles of such frontage may reasonably be expected to be eventually necessary. Santa Monica Bay offers this frontage for the eventual extension of the deep-sea harbor, should the business warrant it. In building a harbor at this point, the Government would be guaranteed in having room enough to enlarge it to meet the requirements of any future trade. The irrigation of Arizona lands and consequently increased products from that section, together with the rapid growth of the whole Southwest, would, under good facilities, support a large coast commerce.

"The extension of American commerce on the Pacific, and the completion of the Nicaragua Canal would likewise give large business to a harbor at this point.

"It may be noted that the nearest available harbor to Los Angeles is at present at San Diego, 120 miles distant, and that the intervening grades are heavy and expensive to work. To the north the nearest harbor is San Francisco, 480 miles distant, with heavy grades to surmount. In the Eastern States, on the Atlantic coast, no such vast extent of seaboard is without numerous harbors.

"Los Angeles, being situated at the only natural break in the mountain chains separating California from the interior, is eminently deserving of being aided by the Government in the construction of a deep-sea harbor. In serving Los Angeles the whole Southwest, and in fact the whole Eastern States, are likewise accommodated with the best outlet for Pacific commerce.

"ADVANTAGES OF SANTA MONICA AS REGARDS DISTANCE.

"Every mile of distance and every hour of time saved in transportation is so much gained, and other things being equal, should decide the location of a harbor at the point most favorably situated.

"Our large and heavy business, lumber, coal, and merchandise, is now with San Francisco and other points north. Santa Monica is nearer these points than any other in this country. It is also the nearest to Los Angeles City.

"In this connection it may be observed that natural causes force the future growth of Los Angeles westward. Every increment to the population of this railroad center brings it nearer to Santa Monica. Eventually it may be surmised that Los Angeles itself will extend to the sea at Santa Monica. No such result can be anticipated elsewhere.

"The distances between Santa Monica and the following stations in Los Angeles are as follows:

"1. By the Southern Pacific Railway:
"University, at the west end of Los Angeles, 12.74 miles.
"Jefferson street station, 13.74 miles.
"Arcade depot, 17.4 miles.
"Commercial street station, 18.2 miles.
"San Fernando street, 19.3 miles.
"2. By the Southern California Railway Company (Santa Fe system):
"First street station, 20.7 miles.
"Central avenue station, 15 miles.

"APPROACHES BY LAND.

"No difficulties, either in the construction or operation of railroads, between the two places exist.

"The Southern Pacific has a right of way for 25 feet each side from the center of its track along the beach to its wharf, and other lines of railway may secure similar rights

of way, also through the town and Santa Monica Cañon, and there is already a wagon road along the beach to and beyond the wharf of the Southern Pacific Company.

"The wharf of the Southern Pacific Company, of which 750 feet is now constructed, will be when completed over 6,000 feet in length, accessible to vessels from all parts of the world.

"The Santa Fe Company have also a line constructed and in operation to this point. They contemplate constructing a wharf at an early day.

"There is also another line between Los Angeles and Santa Monica known as the Los Angeles and Pacific Railway, which is not now in operation.

"Santa Monica has a safe and open approach from the sea. No shoals, rocks, or dangers of any kind exist. Insurance in the cost of pilotage at this point would therefore be at a minimum. The holding ground for anchorage is uniformly good, both inside and outside of any breakwater that might be constructed. The ocean at this point shoals gradually and uniformly.

"The trade winds blow regularly from the west about 350 days in the year. This wind forms for Santa Monica what is known in the West Indies as a lazy man's wind, that is, a wind which permits sailing vessels to approach or depart, north or south, without tacking. This favorable condition would place the cost of towage at this point at a minimum.

"The report made in 1876 by Patteson, of the Coast Survey, says: 'The use of the lead insures entire safety, for the shoaling is gradual, and a vessel can approach the shore anywhere in this vicinity to within 4½ fathoms without danger.'

"The large commerce transacted at Santa Monica wharf in 1875, 1876, 1877, and 1878 was not attended by wrecks or disasters such as have unfortunately and frequently occurred at every other wharf and landing in this county.

"MATERIAL FOR BREAKWATER.

"At Santa Monica a range of mountains comes down to and juts out into the sea. These mountains from the beach to their summits are composed of various kinds of rock. They consist mainly of the following:

"Granite can be found at Cold Water Cañon, back of the Soldiers Home, at Sepulveda Hills, at Tunie Cañon, and also Declezville. All of these points are easily accessible.

"The ocean bottom is as nearly perfect as it could be for the construction of a breakwater at Santa Monica. The official maps of the Coast Survey indicate the conditions in detail.

"The slope of the shore is very gradual. There are no quicksands to swallow up material and there is no stream such as the Los Angeles, San Gabriel, or Santa Ana rivers to bring in débris to choke up a harbor when completed.

"The soundings show that the 10-fathom line of depth runs at a uniform distance from the shore of about 1½ miles for some 10 miles from the Old Santa Monica Canyon, south.

"The peculiar situation of Santa Monica and the prevailing westerly trade winds and swell would, by a breakwater constructed here, provide considerable protection to the entire stretch of Santa Monica Bay to the south. Consequently a breakwater constructed here would protect more coast than if constructed at any other point on Santa Monica Bay.

"The Government holds at present two reservations at Santa Monica, one at the coast on the west side of the town of Santa Monica, of about 10 acres. There is also a reservation of 500 acres back of the town of Santa Monica, part of which is now occupied by a national soldiers' home. These Government lands could be utilized by the Government in any defensive or other operations in connection with a deep-sea harbor.

"Water in abundance and of good quality is, in our days of steam, an essential for extensive shipping interests. The Santa Monica Mountains furnish and contain large supplies of fine water. Rustic, Temescal, and Santa Ynez canyons all contain fine perennial streams, and the Malibu Canyon a very large stream.

"We believe that no other place upon the line of coast designated for your inquiries contains a supply of water equal to that available at Santa Monica.

"Respectfully submitted.

"THE COMMITTEE,
"By J. J. CARILLO,
Chairman."

Maj. RAYMOND. Who submits that?

Mr. CARPENTER. It is the trustees of the city of Santa Monica. Mr. President and gentlemen of the Board, we now introduce Capt. Stoddard.

Mr. STODDARD. Gentlemen, I can only speak from the standpoint of a mariner. I have had some seven years' experience on the coast here; some experience at Santa

Monica, and at San Pedro, and different places. And with regard to Santa Monica, we have fine holding ground—good holding ground. We have good approaches clear of all hidden dangers, accessible at any time. It is not necessary to speak of anything but Santa Monica.

Col. CRAIGHILL. Nothing but Santa Monica.

Mr. STODDARD. I have discharged freight at the old wharf at Santa Monica in very bad weather. On one occasion I was discharging freight the whole night in a southeaster, and it was a pretty severe one too. And in the morning I went around to San Pedro, but was not able to discharge freight there. I carried the freight to San Diego, and left it on the return trip. It was not practicable, and probably not possible, to discharge it at San Pedro. In Santa Monica, even in the heaviest gales, I never knew of a heavy ocean swell with a breaker on top to come in there. There is sometimes a heavy roll—a heavy roll swell—but the sea, the ocean swell, is broken up by the outlying islands, and then again it is interrupted by the slight current of the Santa Barbara Channel. It is a very sensitive thing. And by the time it gets in to the beach it is the remnants of the old roll; sometimes very large, but it is very seldom. I have never seen a dangerous sea there at all.

And I know of one night a bark at anchor there had got under way, with close-reefed tops; it was in the night, and worked out. And the only reason she was obliged to get under way was because she hadn't room to veer her cable, for the wharf. The wharf was too near, and she hadn't room to veer her cable, or she would have laid there; remained there. I am satisfied that the slight current that is almost constantly running down the Santa Barbara Channel has a perceptible effect upon the sea. We had a little experience of that on the coast of North Carolina during the war, when the blockading fleet lay anchored off Fort Fisher for the year round. We certainly couldn't have done it east of the Gulf, and I attribute our success to the effects of the Gulf Stream. And all our sailing instructions to sailing vessels or masters were to keep outside of that bight between Cape Lookout and Cape Fear. And I lay there in a sloop of war part of two winters, and never got under way but once, and that was by signal of the admiral; but never was obliged to get under way for bad weather. And a similar state of affairs are at Santa Monica. I think a vessel—I know a vessel can go there and hold on, in any weather, the year round. Moor a vessel there, with her anchor down, and she rides there, because the holding ground is very good. If you get further to the southward it is not so good as it is a little east of the town.

Maj. HANDBURY. Did you ever have occasion to ride out a storm in that locality?

Mr. STODDARD. Yes, sir, I did; alongside of the dock, and discharge freight all night.

Maj. HANDBURY. I mean anchored off outside of the dock.

Mr. STODDARD. No, sir.

Maj. HANDBURY. What was the size of the vessel you were in the habit of commanding?

Mr. STODDARD. It was about a thousand tons.

Maj. HANDBURY. Did you ever anchor out from the dock at all?

Mr. STODDARD. No; we never had occasion to anchor there.

Maj. HANDBURY. Then your experience is confined entirely to about the dock?

Mr. STODDARD. Yes, sir.

Maj. HANDBURY. From practical experience, do you know anything about the holding ground there?

Mr. STODDARD. Well, yes; I have—I often, in going alongside of the dock, run the ship ahead past the end of the dock for her length, and let go our anchor to ease the lines you make fast to the dock with, and then veer the cable to the proper position to the dock and make the ship fast.

Maj. HANDBURY. That would be just a small anchor, kedge anchor, or something of that kind?

Mr. STODDARD. No, sir; one of our bow anchors.

Col. HAINS. That was in good weather?

Mr. STODDARD. Well, if there was any breeze or any swell—sometimes a swell rolls in there—and the undertow bothers me more than the swell. The wharf was not long enough to get beyond the undertow. The undertow made a great surge alongside of the dock.

Maj. HANDBURY. What was the character of the material that would come up on your anchor when you anchored out there?

Mr. STODDARD. Sand and mud.

Maj. HANDBURY. Do you know of any vessel that has been anchored off of that beach in time of storm, and rode it out?

Mr. STODDARD. I do not, sir.

Col. HAINS. Speaking about the current, captain, that runs along the shore, can you indicate the direction of it along there? Here is the line and here is Santa Monica.

Mr. STODDARD. In speaking of the current outside of——
Col. HAINS. You referred to a current out there.
Mr. STODDARD. The Santa Barbara Channel.
Col. HAINS. There is no current along here?
Mr. STODDARD. Well, there is. We have slight——
Col. HAINS. That is not the current you referred to?
Mr. STODDARD. No, sir.
Maj. RAYMOND. Does that current always run in the same direction?
Mr. STODDARD. It may be, and is, deflected sometimes, and affected by the southeast gales temporarily.
Maj. RAYMOND. Well, it always runs in about the same direction.
Mr. STODDARD. Yes, sir; it runs right down past Santa Barbara. Everybody calls it the Santa Barbara current. It runs there about nine months in the year. It is a little affected by other winds.
Col. HAINS. Do you find any currents along close in the shore, captain?
Mr. STODDARD. There are little currents here along the shore I have no experience with; only I knew the old dock. The water shoals perceptibly underneath the dock after awhile.
Col. ROBERT. That was the current that was going to the west?
Mr. STODDARD. Yes, sir.
Col. ROBERT. The one you refer to is a warmer current?
Mr. STODDARD. It comes down Santa Barbara Channel.
Col. ROBERT. That is warmer than the others, isn't it?
Mr. STODDARD. The temperature? I don't know.
Mr. CARPENTER. He asked you if that isn't a warmer current.
Mr. STODDARD. I am not positive about the temperature, whether it is higher or lower. But I know that the heavy ocean swell—although there is sometimes a little swell comes in here, I have never seen an ocean swell come in here. It is broken up with the outlying islands and the current, and this has an influence on the fragments, and you have only this space here [indicating], and it don't come with violence.
Maj. HANDBURY. Captain, there is one more question. The vessels that you have been sailing over those waters, are they sailing vessels or steamers?
Mr. STODDARD. Steamers.
Maj. HANDBURY. What is the tonnage?
Mr. STODDARD. About a thousand tons.
Maj. HANDBURY. How much water do they draw when loaded?
Mr. STODDARD. We use from 12 to 14 feet.
Maj. HANDBURY. You have never had any experience in those waters then with sailing vessels?
Mr. STODDARD. Not with sailing vessels.
SOMEONE. Captain, what vessel was it you were running at Santa Monica; what kind of a vessel?
Mr. STODDARD. A side-wheel vessel.
SOMEONE. A steam schooner?
Mr. STODDARD. No, sir; a side-wheel steamer.
SOMEONE ELSE. Would you like to go in with a sailing vessel under some circumstances?
Mr. STODDARD. I wouldn't have any hesitation in doing it with 10 fathoms of water, because I can get out whenever I please. I have a long board either way.
SOMEONE ELSE. How about San Pedro, in going into San Pedro?
Mr. STODDARD. Well, you could enter the harbor and proceed to your anchorage.
SOMEONE ELSE. In that storm where you put out and couldn't land there——
Mr. STODDARD. I went there and anchored my vessel; but it was too heavy to allow the lighters to remain alongside.
SOMEONE ELSE. If there had been a wharf there, would you go alongside the wharf?
Mr. STODDARD. Not by any means, sir.
SOMEONE. Did you make a statement that you got under way?
Mr. STODDARD. What do you say?
SOMEONE. Didn't you make a statement that you got under way there one night, under close-reefed topsails?
Mr. STODDARD. No, sir. I made the statement that I saw a bark get under way.
SOMEONE. And she didn't have room enough to pay out chain?
Mr. STODDARD. No, sir; for the wharf. She was anchord just off the buoy and——
SOMEONE. She didn't have room enough to pay out her cable, but still got under way in the dark?
Mr. STODDARD. Yes, sir; got under way in the dark.
SOMEONE. Could you see that see was close reefed?
SOMEONE ELSE. Did you ever see a ship get under way under close-reefed topsails on a lee shore.

Mr. STODDARD. This was not a lee shore.

SOMEONE. Well, it was all right then. The wind was off the land, and you could go anyway.

Mr. STODDARD. It wasn't off the land, but it wasn't a lee shore. And he had plenty of time after he got his ship——

SOMEONE. Aren't you master of the *Centaur* at this time?

Mr. STODDARD. Yes, sir. He had plenty of time after he got his vessel on his course, or up to the wind, to turn out his reefs and make sail.

SOMEONE. How was the wind at the time?

Mr. STODDARD. The wind blowing——

SOMEONE. I want to know how the wind was. I know how the land lays.

Mr. STODDARD. I can't tell you by the compass how it was blowing, but it was from the direction where the southeast wind comes in.

SOMEONE. I know all about the lay of the land.

Mr. STODDARD. It was one of those southeast gales; had the direction they come in.

Col. HAINS. The captain has the floor.

SOMEONE. Yes; but I would like him to speak the truth.

Mr. STODDARD. Yes; that is right.

Col. CRAIGHILL. You will have an opportunity later.

Mr. STODDARD. As far as I am concerned I will challenge anybody to investigate it and demonstrate what I say.

Mr. T. E. GIBBON. Captain, may I ask you one question, please?

Mr. STODDARD. Any question.

Mr. GIBBON. Did you ever know a ship to come into Santa Monica during your experience at that port?

Mr. STODDARD. A full-rigged ship, I don't. I recollect a bark.

Mr. GIBBON. Did you know anything about a ship called the *Frank Austin* attempting to make harbor there?

Mr. STODDARD. No; I don't know the *Frank Austin*. I don't recollect it. If any more of these people want to come for me I am ready for them.

Col. CRAIGHILL. Have you gentlemen any further questions?

Mr. CARPENTER. I would like to ask you, Captain, before you close, to state to the Board the direction that a ship coming from Nicaragua or from other parts of the world would come, with reference to this part of the country. Do you understand?

Mr. STODDARD. Yes, sir.

Mr. CARPENTER. I wish you would explain that fully to them.

Mr. STODDARD. I suppose that any man coming from a foreign port here would make this coast here in the broad open passage, leaving Ana Capa and Santa Cruz islands and San Miguel Islands and Santa Rosa on the left, on the port hand, and San Nicholas. It lays right in a fairway. You can make that fairway buoy, and go either side of it.

Mr. CARPENTER. Come here and point out to the Board on the map.

Mr. STODDARD. Here would be the fairway passage right here [indicating], either one side or the other, as circumstances might require, of San Nicholas Island, leaving these two, Clemente and Catalina, on his right and these other islands on the left, and there would be a fairway in, with no interruption except little Santa Barbara. We can come here——

Mr. CARPENTER. Come here. Where would the ship first reach this part of the country—this coast?

Mr. STODDARD. He would reach it right here, where his destination was.

Mr. CARPENTER. Well, "right here." What is "here?"

Mr. STODDARD. That is San Clemente Island, and that is right in the broad, in the fairway passage.

Mr. CARPENTER. Well, what place does he get to there?

Mr. STODDARD. He gets to Santa Monica.

Mr. CARPENTER. Ah! In coming from San Francisco how would he come?

Mr. STODDARD. He would come the same way. He certainly wouldn't go in between the mainland and Santa Cruz. And he might go down there coastward of the land. He might go in there. But, ordinarily, coming down the coast here from so far north, he would keep outside and go around here—Santa Rosa.

Mr. CARPENTER. Suppose he wants to land at San Pedro, would he have to pass Santa Monica to go there?

Mr. STODDARD. Yes, sir; he would have to pass it, sir.

Mr. CARPENTER. Well, now, if he comes from Nicaragua or elsewhere across the ocean?

Mr. STODDARD. He would come right in here. He wouldn't have—the distance would be probably about the same.

Mr. CARPENTER. Well, "right in here." The stenographer won't know where it is. Will you say what place, or near what place?

Mr. STODDARD. The approaches are at San Nicholas Island and at Santa Barbara Island, and if he is bound to San Pedro he would keep down the channel between Point Fermin and Catalina, and haul up to port there. But the distance wouldn't be very widely different.

Mr. WELLS. Santa Monica still has the floor. I believe the captain has got through.

Mr. STODDARD. One moment, if you please. I have been interrogated on my side of the house, and I want to ask a question with regard to San Pedro.

Col. CRAIGHILL. One minute, captain. When the San Pedro people come on the floor again you will have an opportunity.

Mr. CARPENTER. Where do we come in to interrogate the witnesses of San Pedro or anybody else? We understand we are not to say anything about San Pedro. They have closed and now we are at it, and when do we come in again?

Col. CRAIGHILL. At the next innings. I will explain what my object is in having the successive arrangement. Next time San Pedro comes to the front I want the Santa Monica people to ask them as many questions as they desire, or for anybody else to do so, and when Santa Monica comes up again they can ask them questions. What we want now is to have the advantages of each place brought forth prominently, and the next time the criticisms.

Mr. CARPENTER. Mr. President and gentlemen of the Board, this is Capt. Thompson.

Mr. THOMPSON. I don't know I can add anything to the captain's testimony here, further than I have been about Santa Monica a number of times in small sailing vessels. Discharged lumber there; that is, years ago. I have been at anchor there, and gone out of there in a southeaster. I had no trouble at all in laying there; no obstructions going in, and good holding ground while we were in there. I don't know as I can say any more.

Col. CRAIGHILL. Were you there in a good gale of wind?

Mr. THOMPSON. Well, pretty good southeaster. If we had been at San Pedro we should have done the same thing.

Maj. HANDBURY. You came to an anchor there, did you, or were you past the wharf?

Mr. THOMPSON. We stayed until it blew heavy and then we went out.

Maj. HANDBURY. What were you fast to when you were there?

Mr. THOMPSON. Our anchor held us, 30 fathoms of chain.

Maj. HANDBURY. What sized vessel were you in?

Mr. THOMPSON. The last vessel I was in there was of 73 tons, the *John D. Semborne*, an eastern vessel; came from Santa Cruz there with a cargo.

Maj. HANDBURY. How much did she draw?

Mr. THOMPSON. I have been there in a still smaller vessel than that. Perhaps it is as hard to hold small vessels as a large one, if the sea is heavy enough, and I don't know but what harder. I have been in San Pedro a great many times in a southeaster.

Maj. HANDBURY. What is the character of the bottom there?

Mr. THOMPSON. As near as I could judge, as it states here on the chart, sand. That is the only way I can judge. I have never any necessity of sounding there, or anything of that kind.

Maj. HANDBURY. Do you know anything of a large vessel ever having ridden out a storm in those waters?

Mr. THOMPSON. No, sir.

Maj. HANDBURY. What we are trying to get at is whether there is anyone here that knows of a large vessel that has ridden out a storm there, so that we can get some fair idea of the holding ground.

Mr. THOMPSON. I don't know of any. I don't know of anything more I can say. If there are any questions I can answer——

Mr. WELLS. That is all, then, the Board wishes to ask. Santa Monica still has the floor.

Mr. CARPENTER. Capt. Ellis, Mr. President and gentlemen of the Board.

Mr. ELLIS. Gentlemen, I have been for the last twelve years sailing on the coast in small vessels as master, all along the coast from San Pedro up. And the reason that I know of for building a breakwater at Santa Monica is that it is a better place to get into for vessels coming from the southward, and also from the northward. From observation I should say that, oh, well, nine vessels out of ten big ships that come around the Horn come to San Pedro. They all make Point Conception as the first land they make. After they make Point Conception they come down in this course. The reason they do that they keep outside in the northeast winds until they get way to windward, as, for instance, there is a bark now lying in Santa Barbara, and he says he got up very near the latitude of the Columbia River before he began to come down this way. Now, they all go the same way; and when they come this way they come, as you see—they come off in this direction. That is the way they come in. And in coming in here, Santa Monica, there is nothing to prevent their coming right

straight in. And, also, the wind is always better in this bay than it is down further, nearer San Pedro. Down in here between Catalina and San Pedro, as everybody knows, you often get becalmed. I have laid there for twenty-four hours, floating around, and could get no wind at all, whereas up on the upper coast there you always—most always—get a land breeze offcoast which will help you in or out. That is one advantage for Santa Monica. Another is, practically nine months in the year we need no harbors. We have no gales to amount to anything. The only trouble with gales on this coast is from the southeast. They begin about east of southeast, and work around to the southward and westward, and generally wind up with a heavy northwest storm.

Now, a vessel in Santa Monica, I don't suppose it is presumed a big ship going in there would always get behind a breakwater, whether it was at San Pedro or Santa Monica. The chances are they would be laying outside, a great many times. Our southeasters come up very suddenly; and when one came up in the night or early in the morning, as they generally come, a vessel could get out from Santa Monica when it would be impossible to get away from the anchorage in San Pedro. As you can see by the lay of the coast, that you can very easily lay out from Santa Monica, whereas you couldn't from the anchorage in San Pedro. And that is one advantage in having a breakwater at Santa Monica. It is nearer of access, and it is a much better place to get into and a much better place to get out of. San Pedro, in a southeaster, without a towboat, it is about impossible to get out. Santa Monica you could get out. There are no obstructions in the way. It is a large, open bay, and for that reason I should say that Santa Monica would be the place to build the breakwater.

Mr. CARPENTER. Captain, did you ever try to strike the harbor of San Pedro with a southeaster, with your vessel?

Mr. ELLIS. No; whenever I have been there I have always been in small vessels, and gone inside.

Maj. HANDBURY. One moment, captain. Whereabouts in this Santa Monica bay would be a preferable location for a breakwater?

Mr. ELLIS. The nearer up under this shore, in my opinion, would be the better place.

Maj. HANDBURY. Further to the northward?

Mr. ELLIS. I should say so; yes, sir.

Maj. HANDBURY. Why would it be better there than down at the other end of the bay?

Mr. ELLIS. The wind and sea comes from this direction. Of course Point Dume protects it in a measure, and as you get outside of that you get much more sea on this coast here than you do on this shore here. In regard to the holding ground at Santa Monica, I think it is as good as at San Pedro, but I think there is no trouble at either place.

Maj. HANDBURY. Have you had any practical experience in the holding ground?

Mr. ELLIS. I have anchored, as you see on the map, all along that upper shore there along the coast, and I have always found good holding ground. I have never actually anchored in Santa Monica because——

Maj. HANDBURY. Anywhere along in that Santa Monica Bay?

Mr. ELLIS. Along this shore; yes, sir. I have anchored along this shore at various times, and always found good holding ground. I never actually anchored in Santa Monica; and you can't get testimony from people who have actually anchored there, because there has been very little use of their going there. It hasn't been a commercial port, like San Pedro. And there has been very few sea captains ever gone in there and actually laid there.

Maj. HANDBURY. We understand that. What we want to know more particularly about is the holding ground.

Mr. ELLIS. The holding ground is good. I have never actually anchored there, but I have anchored along this upper coast.

Maj. RAYMOND. You have anchored, captain, at San Pedro, have you not?

Mr. ELLIS. I have.

Maj. HANDBURY. From which directions do your worst swells come in this bay?

Mr. ELLIS. You mean through the majority of the year?

Maj. HANDBURY. Yes.

Mr. ELLIS. Well, about west—northwest.

Maj. HANDBURY. But when you have in stormy weather—when you are liable to have a storm that would drive you away and you want shelter?

Mr. ELLIS. When we have a storm the wind comes from this direction, generally. It commences about east-southeast, and it works around in this direction and generally winds up from the northwest.

Maj. HANDBURY. You have your greatest swells, then, at what time? When the vind is coming from the northwest, do you, or when it is from the other direction?

Mr. ELLIS. The early part of the storm we have them from the southeast, and later on from the northwest.

Maj. HANDBURY. Then this rocky point down there, Point Vincente, and those points, would protect you in the first part of the storm?

Mr. ELLIS. They would; yes, sir. And there is very little room to get up a sea here when the southeaster begins.

Maj. HANDBURY. Then the further down you would get your breakwater under those circumstances, the nearer underneath that, you would be better protected, wouldn't you?

Mr. ELLIS. If I was going to build a breakwater I would build one where it would be the most service the greater part of the year. Ten months in the year our wind and sea is from the westward, and abont two months in the year at various times we have southeast storms.

Maj. HANDBURY. Those are the violent storms that you want to be protected from?

Mr. ELLIS. Those are the storms that you want to get away from.

Maj. HANDBURY. The ordinary summer storm, if I understand the situation up there, you don't need much protection from.

Mr. ELLIS. No, sir; it is from the southeast storms, which come in this direction and go across from here; and then you have room to get out of Santa Monica. It is nearer coming down the coast, because the vessels make higher up. It is nearer both ways from the north and from the south.

Col. ROBERT. I didn't understand, captain, which swell was the worst during the progress of the storm.

Col. CRAIGHILL. How long does the storm last, generally?

Mr. ELLIS. Oh, sometimes twenty-four hours, and sometimes two or three days.

Col. ROBERT. Now, the swell is the worst during what part of the storm?

Mr. ELLIS. Well, I should say the southeast swell was the worst, outside.

Col. ROBERT. At the beginning of the storm?

Mr. ELLIS. Yes, sir; and in the height of the storm.

Maj. HANDBURY. You say "outside." Do you mean outside here, or——

Mr. ELLIS. I mean outside of the islands, where the wind gets a chance to sweep up and down.

Maj. HANDBURY. We are speaking about the bay. When is the worst swell there; what part of the storm?

Mr. ELLIS. Well, I don't think there could be a great deal of swell in there at any time until it gets around to the westward.

Maj. HANDBURY. Then the westward, then?

Mr. ELLIS. The latter part of the storm.

Maj. HANDBURY. The westward, then?

Mr. ELLIS. I should think there would be more swell during the storm at Santa Monica in the latter part of the gale than in the fore part.

Maj. HANDBURY. From your practical experience and from your practical knowledge?

Mr. ELLIS. I have never been in Santa Monica in a southeaster.

Mr. SHORB. Captain, will you permit me to ask one question? What has been the size of your vessels that you have anchored along in the bay of Santa Monica?

Mr. ELLIS. They have all been small vessels, under 30 tons. As I say, you get very little testimony from big ships, because they have never been in there. They have had no occasion to go there.

Mr. CARPENTER. Do you happen to know, captain, if the *Charleston* was anchored off there at Santa Monica?

Mr. ELLIS. Merely from hearsay.

SOMEONE. I know it.

Mr. WELLS. Has any member of the Board any further questions to ask, gentlemen?

Col. CRAIGHILL. No, sir.

Mr. WELLS. That will be all.

Mr. CARPENTER. Mr. Gillett, gentlemen; and he is the assistant chief engineer of the Southern Pacific.

Mr. GILLETT. In May and June of this year I was engaged in making borings at this proposed site, for a breakwater, or for a wharf at Santa Monica; and I have here a profile showing the character of the material found by those borings. That I will show to you. The character of the material is indicated by the different colors. The borings are made from 12 to 25 feet in depth into the bottom, and the distances apart of from 150 or 200 feet to 400 or 500 feet, according to whether they are variable or not.

SOMEONE. Mr. Chairman, many of the gentlemen who are interested in hearing these statements can not understand the gentleman at all. We would like to hear both sides.

Mr. GILLETT. I am willing to speak as loud as I can.

Col. CRAIGHILL. Come around here, and perhaps they can hear you better.

Mr. GILLETT. The only point I wish to bring forward now is the character of the material, which will indicate its value as a holding ground. From a point about 4½ fathoms deep of water at low tide outward toward the ocean the material is principally a rather soft, sandy clay, a soft, sandy mud, varying in depth from 4 or 5 feet to 10 or 12 feet, as indicated on this profile. The remainder, occasional areas of sandy clay, were met with. This accompanying map will show the position at which borings were taken, and the profile will show the depths and character of the material. This is a copy of the Coast Survey chart, copied from the records of the Coast Survey. And this position here is the position of the proposed Southern Pacific wharf. The borings were taken along the central line of that wharf, and extending out for some distance beyond its end, to a depth of about 50 feet of water.

Col. CRAIGHILL. They were taken under your own supervision?

Mr. GILLETT. Yes, sir.

Col. CRAIGHILL. And you vouch for their correctness?

Mr. GILLETT. And I vouch for their correctness. I was there and personally measured and superintended the boring all the time on this line.

Col. HAINS. What does that heavy line indicate?

Mr. GILLETT. That is the 4½-fathom line, and this line indicated here is the position of the Southern Pacific Railroad and proposed wharf. This other diagram, on the same scale as this map, shows the position in which the borings were taken, being taken at the points.

Col. CRAIGHILL. You will leave those maps with us?

Mr. GILLETT. I will do so. Indicating the points where the borings were taken; and the corresponding depths are indicated upon these profiles. In making these borings we used one of the dredging scows which are in use at San Pedro. The scow was about 70 feet long by 30 wide. I don't know what the tonnage would be rated at, but it was about 6 or 7 feet deep, I suppose. And to hold it in the position we use four anchors, one of them at each corner, and occasionally anchors at the side, to hold it steadily while the borings were going on.

Maj. HANDBURY. You mean one of those dump scows?

Mr. GILLETT. Yes, sir. We found no difficulty from the dragging of the anchors in that bottom.

Col. CRAIGHILL. The gentleman doesn't speak very loudly, and I will say for your benefit that these are details concerning the engineering, which concern us more particularly, perhaps, than the balance of you.

Mr. GILLETT. The material that came up on the anchors generally, when we took them up, was a sandy mud. There was no place where there was any difficulty in holding, so far as the dragging of anchors was concerned.

Maj. HANDBURY. Did you take any borings anywhere else, excepting on that line, Mr. Gillett?

Mr. GILLETT. Yes, sir; there were borings taken from the north of what is known as the Santa Monica Cañon, in a direction running to the southeastward, which would be about right angles to the borings which were taken first. On those I was not personally on the scow all the time; but the appearance of it near shore was different.

Maj. HANDBURY. How was it about the 10-fathom curve, or did they go out that far, do you know?

Mr. GILLETT. They didn't go out in that depth of water; 45 or 50 feet.

Maj. HANDBURY. As far as these go out?

Mr. GILLETT. Yes, sir; and as far as we went out on the others.

Maj. HANDBURY. Did you take out any sounding east of that line you speak of?

Mr. GILLETT. None whatever.

Maj. HANDBURY. What is the distance between the shore line and the bluff, up there in the neighborhood of your wharf; that is, about the ordinary high-water line to, say, on the bluff; about what it is?

Mr. GILLETT. Well, I should think from perhaps 100 to 150 feet; at some points 200; ordinary high water. I am speaking from memory. I have never measured it. Take it immediately up to the position where our wharf comes off, it is about 150 feet.

Maj. HANDBURY. Well, that would be very close quarters, then, for large shipping and large railroad operations, to get on and off these docks, to give them that distance between the water and the bluff.

Mr. GILLETT. Of course any railroad coming along that shore would have to make part of its curve on its wharf and out in the water, as we make ours at the Southern Pacific wharf.

Maj. HANDBURY. They would have to occupy pretty much the same tracks, and then turn off as they came along, I suppose, if there was a system of docks and wharves out here.

Mr. GILLETT. They could occupy a parallel position, and run off at any point they chose.

Maj. HANDBURY. So far as the navigation is concerned, and the protection of your shore line there, is that position you have chosen there for the breakwater a better one than this, or is it only just for special commercial reasons that you go up there? Has that any advantage, as far as the navigation is concerned, over this?

Mr. GILLETT. That I am not prepared to state. I am not a navigator, and as I did not locate that line, I ——

Col. CRAIGHILL. Who located it?

Mr. GILLETT. The chief engineer.

Mr. WELLS. May I suggest to Mr. Gillett that if he will direct his remarks toward the audience, that the audience and the board also will be able to hear. The board hears perfectly now, but the audience loses the most of it.

Mr. CARPENTER. I wish you would state to the board, Mr. Gillett, before you finish, what effect the breakwater would have with regard to ships lying at the wharf.

Mr. GILLETT. The breakwater would undoubtedly protect the ships lying at the wharf and make it easier for them to lie there. There were times, when were making these borings, when it would have been very difficult for a vessel to have laid there. The breakwater would have been necessary for the vessels to lie there, in my opinion. I am not a sea-faring man, and am only giving my judgment. There is no other matter that suggests itself to me. If you have any further questions?

Col. HAINS. I don't know that we have.

Mr. GILLETT. I will leave these maps with you.

Mr. WELLS. Because of the crowded condition of the room, and it is so warm, it being so crowded, the board will now adjourn until 2 o'clock, and at 2 o'clock we will reassemble in the larger room, where there will be greater space and more comfort.

Col. CRAIGHILL. Before adjournment let me say one word, if you please. I desire, especially, that all of the gentlemen who have taken part in the discussion this morning will be present this afternoon, because we have their testimony, taken by the stenographer, and the members of the board may desire to ask them some further questions, so that I hope all the gentlemen on either side who have been present at the morning session will also be present at the afternoon session.

Recess until 2 o'clock p. m.

THURSDAY, *September 8, 1892—2 o'clock p. m.*

Mr. WELLS. Come to order, gentlemen. It is in order to continue with the presentation of the case of Santa Monica.

Mr. CARPENTER. We will call Mr. Charles Monroe. We want you to state to the board the means of access of other railroads to the harbor at Santa Monica, if one is constructed. Mr. Monroe, you are an attorney at law, I believe?

Mr. CHARLES MONROE. Yes, sir.

Mr. CARPENTER. You represent Jones & Baker, do you not?

Mr. MONROE. Yes, sir.

Mr. CARPENTER. Large landowners near Santa Monica?

Mr. MONROE. Our firm does—Wells, Monroe & Lee.

Mr. CARPENTER. Well, now, will you state what means other railroads have of getting into the harbor there?

Mr. MONROE. Well, I shall have to state that from the standpoint of a lawyer, and what was done down there. Last fall the Southern Pacific instituted condemnation proceedings to obtain a right of way up the beach for their railroad to the location of the proposed wharf. These condemnation proceedings, as I understood it, contemplated the obtaining of 100 feet. Messrs. Jones and Baker contested that, and contested that on the ground solely that they were afraid that would prejudice other railroad companies that desired to come in there. Before the case came to a hearing, the railroad company and Jones & Baker agreed; Jones & Baker agreeing on certain conditions, to grant to the Southern Pacific Railroad Company a right of way of 50 feet in width. In their instructions to us and in the conferences with the railroad company where I was present, it was stated by Jones & Baker and by myself at their direction, that they would not grant any right of way and would contest the giving of any right of way to the Southern Pacific that would prevent other roads from going in. But they did agree to give 50 feet, providing it was taken immediately under the bluff.

The Southern Pacific had made a survey, and their stakes were along under the bluff. We went down there and Mr. Jones and Mr. Baker, I think Mr. Stone, of the Southern Pacific, and some of the other officers of the Southern Pacific; and Mr. Jones and Col. Baker then stated that they were satisfied with the right of way if the stakes indicated where it was; but that railroads had a habit sometimes of throwing their track over, where the right of way was given as so many feet on each side of the

center of the track, and so not having it in a fixed place. If it could be arranged so that it should always be where the stakes were, they were content with that; so that a demand was made of the Southern Pacific field notes. The field notes were then verified by the engineer of Jones & Baker, and the description put in the deed was the field notes furnished and verified; so that they are tied up to a particular location. This right of way of 50 feet along the beach, as I say, is close under the bluff; and I don't know that I can locate it exactly at the bath-house on what is known as the north beach, and there the edge of the right of way towards the ocean does not come within—nearer than about 10 feet of the rear of the bath-house, so that I should judge there was somewhere from 100 to 150 feet between their right of way and high-water mark. There is quite a large distance. I may be wrong in the figures, but there is quite a distance. There is the whole width of that building and a good deal of the beach besides before getting to the high-water mark, and that is the condition all the way up the beach, and I might add that—I don't know but what I have said that in all the conferences between Jones & Baker and the railroad company—the main idea with Jones & Baker was that they wanted to leave plenty of room there so that other railroads could get in, and we believe that we have done that, and I think it has been done. There is plenty of room there, and their anxiety all the time was that other railroads should get there. They are very anxious to have as many roads there as can come.

Mr. CARPENTER. That is all, unless the commission wish to ask you something.

Mr. A. M. STEPHENS. I would like to ask a question or two, with the permission of the honorable Board. How far up the coast does this grant which Messrs. Jones and Baker gave to the railroad extend, with reference to the old wharf of Santa Monica?

Mr. MONROE. It runs up to Santa Monica Cañon, and then, I think—that is the first piece. There is another grant beyond there. Now, I have brought with me a copy of the deed, which I would be very glad to submit to the Board, if they care to see it. That gives a description of the right of way granted, by the field notes.

Mr. STEPHENS. Are you speaking now of the grant made by Messrs. Jones and Baker?

Mr. MONROE. Yes.

Mr. STEPHENS. Which extends up to the old cañon?

Mr. MONROE. It extends up to the cañon. And then there is another piece beginning further up. As I recollect it now, the land immediately north of the cañon does not belong to Jones and Baker; that is my recollection, but still above there is some that does; and the right of way over that was also included in the grant.

Mr. STEPHENS. Now, with respect to the projected pier which is partly constructed by the Southern Pacific Railroad, how near does the Jones and Baker grant come to that?

Mr. MONROE. My recollection is—I am not positive about that—but my recollection is that immediately at the pier they owned land, and did give a strip of land immediately above the pier, I think—beginning below the pier—I am not certain about that—for a roundhouse. That is my recollection of it now, that that was one of the pieces.

Mr. STEPHENS. But the distance from the old wharf of Santa Monica—the old cañon—to the pier; can you give us that?

Mr. MONROE. I can't give that.

Mr. STEPHENS. That space in there. You have no idea as to the title?

Mr. MONROE. I have no idea about that or about anything, except what is contained in the deed from Jones and Baker.

Mr. STEPHENS. Isn't that a narrow pass bounded upon the north by extremely high hills and upon the south by the ocean?

Mr. MONROE. I have never been above the cañon and know nothing about it.

Mr. STEPHENS. And that exact distance you do not know?

Mr. MONROE. That I do not know. My knowledge of the locality is simply up to the cañon, and my knowledge of the descriptions is simply what was given by the engineer and put into the deed.

Mr. STEPHENS. But you know that the grant which you have described does not extend up to the shore end of the pier?

Mr. MONROE. Not without a break, as I understand it. Is that all?

Mr. WELLS. That is all, then, Mr. Monroe. We are ready for the next, Judge Carpenter.

Mr. CARPENTER. Mr. Crawley, gentlemen, assistant freight and passenger agent of the Southern Pacific Railroad.

Mr. WELLS. Mr. Crawley, you have the floor.

Mr. CRAWLEY. Well, in response to any question, or to start in myself?

Col. CRAIGHILL. You may make any statement you think proper.

Mr. CRAWLEY. Well, speaking from a commercial point of view, and which has been demonstrated by the fact that the Redondo Railway Company has secured

considerable business, not on account of any, in my opinion, not on account of location or facilities, but simply in the question of time. I think if there was a deep-sea harbor at Santa Monica that great saving of time could be made on freight and passengers from the north. They would stop at Santa Monica first, thence at Redondo, and from there go to San Pedro—a saving of time to passengers, probably, all the way from six to twelve hours, and in freight much more.

Col. HAINS. Between what points?

Mr. CRAWLEY. Well, say between a point at Santa Monica and at San Pedro.

Col. HAINS. Yes; but I mean what points would the travel be?

Mr. CRAWLEY. Well, say from San Francisco or any port north. That is where the bulk of the present travel comes from. There is no travel from the south; probably 3 or 4 per cent, I suppose, of the passengers, the total number of passengers landed, would be from the south. All the passengers come from the north, or nearly all, and, of course, if that applies to coming down, it also follows that it would be the quickest channel in which to reach the north from Santa Monica, that is, the passenger would have more time in Los Angeles. He could wait here, go to Santa Monica, and meet the vessel there and go north, and spend more time in Los Angeles beforehand. And in coming down from the north, touching at Santa Monica first, he would naturally land at that point. The saving of time would be an inducement, a strong inducement, in my opinion, to do so. That has been demonstrated at Redondo, and what is applicable to Redondo now will be in a much greater degree at Santa Monica when opened. In freight, I presume that we could deliver freight at Los Angeles before the steamer containing the freight intended for Los Angeles by the way of San Pedro would reach San Pedro. I don't know the exact difference in time. It all depends upon how much freight there would be at the intermediate port of, say, Redondo, assuming, of course, that the steamer would touch at all three points, and not assuming going to any. I am speaking of the present circumstances, of what the steamer does now. She performs the service of touching at three ports—two porst.

Mr. WELLS. Has the Board any questions?

Maj. RAYMOND. I would like to ask a question. What proportion of the passenger traffic from the north goes now by sea as compared with that which goes by land?

Mr. CRAWLEY. Well, I can——

Maj. RAYMOND. Can you tell me roughly?

Mr. CRAWLEY. Well, I should say not more than 25 per cent; about 25 per cent.

Maj. RAYMOND. As much as that?

Mr. CRAWLEY. I think so. Of course, I haven't the——

Maj. RAYMOND. I asked the question because I wanted to know how important that passenger traffic was relative to the whole amount of passenger traffic from the north.

Mr. CRAWLEY. That, of course, I would have to get my statistics from the Pacific Coast Steamship Company.

Maj. RAYMOND. If they wanted to save time they would be more apt to go by rail than by water, even if it was a little shortened by a few miles.

Mr. CRAWLEY. Yes, that is true; but there are quite a number who prefer the sea voyage. It is a very pleasant trip, and if the time was lessened by water quite a number more would take that trip.

Maj. RAYMOND. Yes. That is all.

Mr. WELLS. Are there no other questions? That is all, then, Mr. Crawley, if you are through.

Mr. CRAWLEY. It seems to me it would be the natural channel that the passenger would seek. Although a sea trip is pleasant at times it isn't at all times desirable; that is, they don't like to prolong it. And the first port, I think, judging human nature from my own standpoint, that would be the first point I would land at. And speaking for freight, I know there would be a great saving in time. I can place myself on record as saying that freight from the north could be delivered at Los Angeles by way of Santa Monica in about the same time such vessel containing the freight for San Pedro, intended for Los Angeles, would reach San Pedro.

Maj. RAYMOND. As far as the coastwise traffic is concerned, either in freight or passengers, I suppose it is very small as compared with that carried by the railways?

Mr. CRAWLEY. Oh, no, sir. The tonnage by water and rail to-day exceeds the tonnage by all rail.

Maj. RAYMOND. Does it, indeed?

Mr. CRAWLEY. Oh, yes. That is on account of the lower rates. We couldn't make the same rates all rail as the combination of water and rail can make.

Col. ROBERT. That is the point I wanted to get at. You know those differences don't exist in the East in all places, by any means?

Mr. CRAWLEY. No.

Col. ROBERT. Sometimes the routes by rail can succeed in beating the routes by water.

Mr. CRAWLEY. Well, there are difficulties in connection with the route from San Francisco. We had to overcome that great Tehachipi grade of mountains there, and of course it is very expensive. Coal costs so much more on this coast. It will average probably $6.50 to $7 per ton, the cost of coal to the company alone, while in the Eastern States I suppose it won't be on an average more than $2.

Maj. RAYMOND. No, sir.

Mr. CRAWLEY. So that at all times there would be a less rate by water and rail combined than there would be by rail alone.

Mr. GIBBON. Mr. Crawley, isn't it a fact your road has certain rates on merchandise from here to San Francisco that are as low as the rail and water rates now?

Mr. CRAWLEY. On two or three commodities, yes, sir.

Mr. GIBBON. Staple commodities?

Mr. CRAWLEY. Yes, sir; old established rates that have been in force and can't be filled out.

Mr. GIBBON. The saving in time on business is simply that business coming from San Francisco, and the coast trade in this direction, isn't it?

Mr. CRAWLEY. Yes, sir; I was speaking in this direction.

Mr. GIBBON. That is the only business there would be any particular saving of time?

Mr. CRAWLEY. There would be a saving of time in the north-bound business, too. That is to say, the merchants would have more time to prepare and get ready this freight for shipment north by the way of Santa Monica than San Pedro.

Mr. GIBBON. That business now is accommodated by the Redondo wharf, is it not?

Mr. CRAWLEY. In a great measure; a great part of it, yes.

Mr. GIBBON. The Redondo wharf affords all the necessary facilities for the accommodation of that class of business, does it not?

Mr. CRAWLEY. I don't think so.

Mr. GIBBON. Well, it affords such facilities that it has taken that business from the San Pedro Harbor?

Mr. CRAWLEY. It has not taken all that business.

Mr. GIBBON. Well, taken business which this Santa Monica wharf would catch. It is properly done now by the Redondo wharf, is it not?

Mr. CRAWLEY. Well, that is something I can't tell. That is a question for the future to decide.

Mr. GIBBON. Isn't it a fact, however, that the motive, the leading motive, in the construction of this wharf at Santa Monica arises from the desire to take from the Redondo wharf the business which they have taken from the San Pedro wharf?

Mr. CRAWLEY. I don't look at it that way. The building of that wharf, so far as I know, is simply to better the conditions of commerce; to give better facilities to the commercial man to ship his freight and receive his freight than at present exist.

Mr. GIBBON. Better facilities than the Redondo wharf at the present time affords?

Mr. CRAWLEY. Above any.

Mr. GIBBON. It is a fact, is it not, that the Redondo wharf ——

Mr. WELLS. I beg your pardon, but I think it is the desire of the Board to confine this examination strictly to the merits of Santa Monica.

Mr. GIBBON. This is simply a series of questions intending to get at the matter of Santa Monica. This is the last question, before I reach the Santa Monica matter, I desire to ask. It is a fact that most of this commerce now is carried on very conveniently by the Redondo wharf?

Mr. CRAWLEY. A great portion of it.

Mr. GIBBON. What is the difference in time between Santa Monica and Redondo by steamer? An hour?

Mr. CRAWLEY. I should say nearly six.

Mr. GIBBON. Six?

Mr. CRAWLEY. Five or six hours; yes.

Mr. GIBBON. That a steamer would reach Santa Monica five or six hours before it would reach Redondo?

Mr. CRAWLEY. It depends on the cargo that has to be unloaded at Santa Monica.

Mr. GIBBON. I am not speaking about unloading, now; simply the question of time of reaching the two points.

Mr. CRAWLEY. Well, I should say about an hour and a half or two hours.

Mr. GIBBON. Then, in point of fact, the only difference in the handling of this freight is about an hour and a half or two hours as between Redondo and Santa Monica?

Mr. CRAWLEY. No, sir; there is the time consumed in lowering the cargo from the steamer.

Mr. GIBBON. They would have to unload, of course, at Redondo or Santa Monica, either one, of course.

Mr. CRAWLEY. But there would be time consumed in unloading at Santa Monica

wharf. That time must be added to the difference of the running time between Santa Monica and Redondo.

Mr. GIBBON. But that time would be consumed at Redondo just the same?

Mr. CRAWLEY. Exactly.

Mr. GIBBON. So the difference would be the difference in time between the arrivals of the steamer.

Mr. CRAWLEY. Oh, no; you must add to that the time consumed in unloading the freight.

Mr. GIBBON. We are speaking—inasmuch as that time would be the same at either place, of course the time at one place offsets the time at the other.

Col. CRAIGHILL. Speaking of the same freight at either place?

Mr. GIBBON. Yes, sir. If it took you but four hours to unload at Santa Monica it would take you the same at Redondo.

Mr. CRAWLEY. But you must add that four to the two; that makes six. And then add four more; that makes ten, at San Pedro.

Mr. GIBBON. I am speaking of Redondo. The only difference would be the difference in the distance which the schooner has to go, as between Santa Monica and Redondo, which you say would be about an hour and a half. Isn't that true?

Mr. CRAWLEY. No, sir.

Mr. GIBBON. Why not?

Mr. CRAWLEY. You must add the time consumed in getting the freight out of the vessel.

Mr. GIBBON. But you consume the same time at either point?

Mr. CRAWLEY. But Redondo is an after consideration. Santa Monica comes first. By the time we got the Santa Monica freight in Los Angeles that we would get at our dock, the next wharf would have their freight unloaded at the wharf.

Mr. GIBBON. Take it now that there is no wharf at Santa Monica. The freight at Redondo would reach this town, supposing the steamers stopped there first, only about two hours later than it would if landed at Santa Monica?

Mr. CRAWLEY. Oh, no, sir.

Mr. GIBBON. Why not?

Mr. CRAWLEY. It would be the time consumed in getting the freight out at Redondo added to the difference in time between Redondo and San Pedro.

Mr. GIBBON. But you would consume that same time at Santa Monica.

Mr. CRAWLEY. You do; but that is the first stop, my friend.

Mr. GIBBON. Yes; that is all.

Mr. WELLS. Have you any further statements to make?

Mr. CRAWLEY. No, sir; unless the gentlemen have some questions.

Mr. WELLS. Unless the Board has further questions that will be all. I wish to say the Board desires to get through to-day if possible, and I hope no one will think I am crowding matters if I urge haste and ask your representatives to confine themselves to the essential points just as much as it is possible, and make them clear. Judge Carpenter.

Mr. CARPENTER. Mr. President and gentlemen of the Board, I will now introduce Mr. Hood, chief engineer of the Southern Pacific Company; and I will ask Mr. Hood to go over the ground gone over this morning—you are familiar with it—in your own way.

Mr. WILLIAM HOOD. Mr. Chairman, I am ready for any questions that yourself or Board wish to ask.

Col. CRAIGHILL. Well, I will say with reference to Mr. Hood that, as far as the engineering questions are concerned, we don't care to have them touched on before this meeting at all. As far as the engineering questions are concerned we propose to have a special interview with Mr. Hood, as well as the other engineers of the road and other interests involved; and I think that is a matter with which this meeting has nothing to do.

Mr. HOOD. Mr. Chairman, there have been questions touched on here in such a way that I feel it might be appropriate for me to refer to them.

Col. CRAIGHILL. Yes.

Mr. HOOD. As I understand it the present stage of the inquiry is confined to Santa Monica, but to a certain extent I can hardly answer questions about the one without somewhat touching on the other. One of the early speakers in this conference said that it was due to the public as well as to the Board that the question be asked why the Southern Pacific Company advocated the building of great public improvements at Santa Monica in a position where they will surely get all the benefit of it; and I am prepared to answer that question to the Board or to anyone who wishes to ask for details, or to volunteer an answer, as may be desired.

Col. ROBERT. We would like to have you answer.

Mr. HOOD. Yes. In the first place, in connection with that matter, I will submit to the Board a map on tracing cloth, which shows exactly the property either owned or claimed, or in any other way affected by the Southern Pacific Railroad or South-

ern Pacific Company's interest [exhibiting map to the Board]. Secondly, I will show, after this has been sufficiently inspected, a map showing all the property owned, claimed, or in any way controlled by the respective railroad companies whom I represent to a certain extent, or by the individual members thereof, at San Pedro. Any possible claim or interest that the company possesses at either point is shown on these two maps. I think that these two maps, in combination with, and also as illustrating the remarks of the attorney of Jones and Baker, will show clearly that the Southern Pacific Railroad Company has a preponderance of land interests and improvement interests at San Pedro; and that being so, that the whole question will be very promptly dropped. This, gentlemen, colored in red or carmine, is absolutely the entire property owned and claimed by the Southern Pacific Railroad, which you all know is leased by the Southern Pacific Company. It is the same thing, so far as you are concerned. This map also shows that the town of Santa Monica exists to a certain extent on the coast; shows that Jones and Baker own up to a certain point in Santa Monica Cañon; shows that other private parties own in Santa Monica Cañon. Jones and Baker own to the westward of the wharf to a distance too far for this map to show, which you have no further interest in, I imagine. And here is a tract abutting on the land adjoining the wharf, known as the Santa Monica Heights tract. Now, that has been referred to as a very important piece of property for the Southern Pacific Railroad. To the best of my knowledge that property belongs essentially and in fact to Mr. C. P. Huntington; and to the best of my knowledge, being a piece of property which abuts on the ocean with a bluff 175 feet, vertical, in height; and to the best of my knowledge, and according to his assertions and according to all probability, that property was purchased as a matter of real estate, and, he informed me, to be given to one of his relatives. His nephew has also informed me the same thing. But it cuts no figure at all. We are willing to let it stand as railroad property, if you like. It makes no difference. It is a piece of property that can by no possibility be utilized for port purposes.

Maj. RAYMOND. Between the bluff of Santa Monica, that large cañon, and the wharf?

Mr. HOOD. It abuts on the water.

Maj. RAYMOND. Yes; it is right on the water.

Mr. GIBBON. It carries the title to the water.

Mr. HOOD. It carries the title to the water to the usual limit.

And our side tracks that we propose to use in connection with the wharf are immediately in front of and upon that land. Now, this company does have more property from Jones and Baker than has been represented, simply from negligence in detail. It does have a tract of land 50 feet on one side and 75 feet on the other, just at Santa Monica Cañon, just for station purposes. It does have 100 feet in width through the other owners and through the Santa Monica Heights tract. It does have a small piece of land on the point for engine purposes. Further than that, through the Jones and Baker tract, and through Santa Monica, it has a piece of land only 50 feet wide, but so adjusted in reference to the center line of the railroad that we can readily put in another track on the ocean side. In other words, instead of being 25 feet on each side of the center line, it is 31½ feet to the ocean side from the center of our track, and only 18½ feet upon the bluff side. That is with our deliberate intention of putting in a double track there in the near future to handle the large business we expect. Aside from that there is a distance, averaging fully from 150 to 200 feet wide—the least is 100, and from that to 150, between our right of way and the ocean, where, as has been said, there is ample access for half a dozen railroads, with as much facilities as we have, and I hope you will see them there, if they want to come.

In addition to that, the size of this breakwater, perhaps, does not seem to be appreciated. There have been errors in the statement of figures. The lowest size of the breakwater that was ever proposed by the former Board at Santa Monica, in a situation further to the east, was 8,250 feet long, or considerably more than a mile and a half. I say freely that the Southern Pacific favors in place of that, not critically, but because we conceive it to be to our interests, a location at the other side, the necessary length of breakwater to be subject to proper approval, 8,400 feet long, commencing just to the westerly of our coast wharf and extending westwardly to the Santa Monica town limits—that is, to opposite the Santa Monica town limits—leaving this entire space free for anybody and everybody to be situated exactly as well as the Southern Pacific Railroad Company. And you will notice—not to take any credit for it—but we have incidentally placed the improvements that are now going on there to the extreme westward limit, furthest from the town, or north of it, if you prefer to use the term, of the proposed protected area of the breakwater. There is certainly a chance for as much wharfage to go out under other control than the Southern Pacific, in such protected area, as there is in half of the entire present frontage of San Francisco. I think that will settle that question, but, at any rate, I will leave this on file with you, if you will accept it.

Col. CRAIGHILL. Certainly.

Mr. SHORB. May I ask you one question?

Mr. HOOD. Certainly.

Mr. SHORB. If the chairman will permit me. You state that your company, or the one for which you are the representative here, that you put the wharf at the extreme western limits for the purpose of leaving all this——

Mr. HOOD. Excuse me.

Mr. SHORB. Free for purposes to be hereafter enjoyed by competing companies, did I understand you to say?

Mr. HOOD. No, sir; you misunderstood me entirely. I said we claimed no credit for any such public spirit, although we sometimes ought to get it; but I said incidentally, as can be very readily identified. We have done it for motives I don't touch on; motives you can infer yourself. We claim no motives; we have none.

Mr. STEPHENS. May I ask, if you please? It is proposed to project a breakwater oceanward from a point beyond your pier. How far north?

Mr. HOOD. I should have to refer to the chart that was left here by Mr. Gillett this morning in blue print; but essentially it may be said to be 4,000 feet. That is, understand, we are not proposing any breakwater. We are not proposing its position or any plan. We are proposing a general position, nothing more. It is not our province, the province of the railroad company, to say to a board of engineers or to anybody else how a breakwater should be built, or where, or anything else. We do freely, when our interests are affected, use any influence we can to get such improvement where we think it will do the most good to us or other people, but further than that we make no proposition of any description.

Mr. SHORB. I don't think there is any misunderstanding, as far as that is concerned. It wasn't that you were presenting any breakwater, but you were presenting another one. Is that the proposition?

Mr. HOOD. Yes. To get at the essence of your inquiry in general, we had thought that a breakwater along the line I have described, the western limit which is essentially opposite our wharf, which we are now building rapidly, and which we are going to build and handle commerce on whether there is a breakwater built in the United States or not, we had thought a good place for that breakwater would be its western limit to be about opposite our wharf, and to extend eastwardly to opposite Santa Monica.

Mr. STEPHENS. What would be the necessary length of the westernmost line of it, projected out into the ocean?

Mr. HOOD. It is all in the ocean. There is no arm going to the shore. We had considered, with a limited knowledge of those matters, that an arm of the breakwater project from the shore, and then an outlet further out in a locality where it is well known there are moderately strong shore currents one way and another, depending on the wind and tides, would be so sure to close it up, or so likely to do so, that no engineer would propose it for Santa Monica. And I am confirmed in that by the former Board having proposed a breakwater as we have here. In fact we have just copied it.

Maj. HANDBURY. What advantage in position do you find between the one established by the other Board and the position of this?

Mr. HOOD. Our view of the subject is this: I use the terms "our" and "we" as railroad men all do about the mother corporation.

Maj. HANDBURY. We understand that.

Mr. HOOD. Our view of the subject was this: The old Santa Monica wharf, which was acquired by the Southern Pacific Railroad Company and which used to extend out 1,800 or 1,900 feet, and which was in a place where, as you have received testimony this morning, captains could tie to in pretty bad weather and receive freight. But we found, and it was well known by navigators, that when the swell was exceedingly heavy with a westward gale, so heavy as to make it practically impossible to lie to the wharf, but necessary to go out to moorings indicated by buoys, or to run away, that up in here, 2 miles and more to the westward, the water was comparatively calm; not calm. There is no calm water there; but comparatively so. We found the times would frequently occur that when we couldn't handle vessels lying along the wharf there without danger to the wharf and the vessels both, simply from the violence with which they would heave; that the water was much smoother there, and that we could much oftener keep a vessel there than here; all without any reference to breakwaters whatever. And, further than that, the Pacific Coast Steamship Company, who would naturally give us a great deal of freight and discharge business, told us that they could under no circumstances guarantee to come to a wharf there, but they would do so if we would go in this older known—well-known—locality.

Maj. HANDBURY. How do you explain that?

Mr. HOOD. Of course this explanation is evidently for the audience. This Board must be well aware that Point Dume is so situated with reference to the westerly swell, which is pretty constant in direction, but not always so, that it comes practically unbroken here, and is more the result of what I might call a reflected swell

there than it is of a direct one. That is our observation. As the result of that, as the Pacific Coast Steamship Company, who would be our direct connecting company, practically refused to consider coming to a wharf there—we knew they were right—we went up there and commenced building our wharf without any reference to breakwaters whatever.

Mr. SHORB. That is the reason that wharf was abandoned, then?

Mr. HOOD. One of the reasons. And this design for the wharf, although the execution of it is recent, the design for the wharf was fixed somewhere between two and three years ago, so far as location is concerned, on those grounds only, before the breakwater question had come up, before we knew there was any show for a breakwater at all. And the obvious benefit of a breakwater up there to a wharf, even in a sheltered locality, would be that sometimes the swell is of sufficient violence so that we would much rather have one there than not, even if it is less than at Santa Monica.

Mr. SHORB. How long after this wharf was abandoned right opposite Santa Monica, Mr. Hood, before you conceived the idea of building this breakwater up here or here?

Mr. HOOD. Well, I couldn't put it that way. But I don't remember having myself given that subject any study. I was directed to give it study more than three or four years ago; and I will only say that in a general manner, because I don't pretend to remember accurately, but it was about that time.

Mr. SHORB. The only reason I asked is this: Governor Stanford, long after that wharf was abandoned there, was intent upon securing all the appropriations he thought he could obtain from the United States Government to improve the breakwater at San Pedro. That is the reason I asked the question.

Mr. HOOD. Well, I can only say I know nothing of Governor Stanford's motives, intentions, wishes, or desires in that matter as a public officer.

Mr. SHORB. I merely asked that for information.

Mr. HOOD. I am densely ignorant on the subject. I simply know what I was ordered to investigate, and about when.

Mr. GIBBON. Mr. Hood, you indicate in a general way the contour of the coast line beyond here?

Mr. HOOD. I can indicate it on any chart.

Mr. GIBBON. If you can give me a general indication of it it will serve my purpose.

Maj. HANDBURY. Mr. Hood, was that old wharf at Santa Monica, any part of it, washed away, or was it merely abandoned?

Mr. HOOD. No, sir; it was taken down. It got badly teredo eaten and unsafe for use. It was built of wood piles.

Maj. HANDBURY. How far out in the ocean was it?

Mr. HOOD. My remembrance is it was about 1,800 odd feet.

Mr. GIBBON. Now, will you please indicate——

Mr. HOOD. Yes, sir.

Mr. GIBBON. Now, will you please indicate the position of your wharf there. Now, this, I understand, is the suggested breakwater.

Mr. HOOD. That is it.

Mr. GIBBON. Now, you were just speaking a moment ago of what you thought a breakwater so located would secure. You were comparing it with San Francisco.

Mr. HOOD. Yes, sir.

Mr. GIBBON. Can you say about how much of that breakwater frontage would be north of your——

Mr. HOOD. West.

Mr. GIBBON. West of your proposed wharf?

Mr. HOOD. There might possibly be 700 feet out of 8,400.

Mr. GIBBON. And where would the remainder be?

Mr. HOOD. In here. That is, any one can build a wharf on the same principle we are doing, and cheaper, because we are building a wharf against the waves prior to the construction of the breakwater.

Mr. GIBBON. As I understand you, this land here extending from the cañon is the private property of Mr. Huntington, the president of the company now?

Mr. HOOD. I say it is my opinion it is. I have no information whatever, but I have reason to believe it.

Mr. GIBBON. It is the land of Mr. Kinney, isn't it?

Mr. HOOD. Yes, sir.

Mr. GIBBON. And taken in the name of Mr. Frank ——?

Mr. HOOD. I don't know the details, but I understand it to be so, and you might as well assume it.

Mr. GIBBON. That is a land with a very high bluff?

Mr. HOOD. Yes, sir.

Mr. GIBBON. And your company owns or can control all its property here. That represents a frontage of how much?

Mr. HOOD. It is about 2,000 feet, more or less.

Mr. GIBBON. And the 700 feet will be added to your frontage by the breakwater? It would make 2,700 feet.

Mr. HOOD. Exactly; at the same time, you notice the shape of the wharf. It is necessary to give it with a curve. They can go anywhere they are a mind to after they get outside. You are all aware that if a railroad company has more land than it has use for it can't hold it.

Mr. GIBBON. To be sure not, but what we are getting at just now is the length of usable land for railroad purposes, the breadth, rather, between those aligning bluffs and tide water.

Mr. HOOD. I think other railroads could go parallel with that outside the right of way, for about 75 or 80 feet, and hold it as we propose to hold it, with rock.

Mr. GIBBON. But you cut off all access here. It is necessary to cross your track to get access here.

Mr. HOOD. It would, but there is room there.

Mr. GIBBON. Here your company owns this strip of colored land.

Mr. HOOD. Yes, sir.

Mr. GIBBON. And that extends along the whole water front, doesn't it?

Mr. HOOD. With these slight modifications.

Mr. GIBBON. Down the whole front.

Mr. HOOD. No; as far as the old wharf.

Mr. GIBBON. Along the whole protected water front of this breakwater?

Mr. HOOD. Yes, sir.

Mr. GIBBON. Before another company could get in here it would be necessary for them to cross your track, wouldn't it?

Mr. HOOD. No, sir.

Mr. GIBBON. How could they get in?

Mr. HOOD. By a number of routes; from down the coast; from the Arcadia Hotel; anywhere at all.

Mr. GIBBON. What is the amount of space they would have?

Mr. HOOD. They would have enough for seven tracks 13 feet apart with perfect safety; and more, if they choose to do a little protecting.

Mr. GIBBON. Land which you don't own?

Mr. HOOD. Yes sir.

Mr. GIBBON. In point of fact, however, your company at the present time occupies a strip of land the full width of the water front, leaving as a strip, possibly, for any other company a very narrow strip of, say, 75 feet in width.

Mr. HOOD. No; averaging at least 100; about room for seven tracks, without doing any strengthening work to protect against the ocean.

Mr. GIBBON. And there is no possible approach from this side, because that is all bluff.

Mr. HOOD. That would be very difficult.

Mr. STEPHENS. Mr. Hood, may I ask whether these indicate any water-mark?

Mr. HOOD. It is very general. This map is not accurate in any respect. It is only a copy of the topography. The only thing accurate about it is the ownership.

Mr. STEPHENS. When you speak of the hundred feet which lies between your right of way and the water line, do you mean between high or low water?

Mr. HOOD. I mean between extreme high water and our ownership. If you had been at Santa Monica you would remember the flat space at the foot of a bluff before it pitches down.

Mr. STEPHENS. I am quite familiar with it, but I haven't been there since your road was built.

Mr. HOOD. We have held as close to the bluff as we dared all the way. Now the second part of that, which I suppose you gentlemen would like to see, is absolutely all the property that is owned or controlled——

Mr. CARPENTER. Before you get on that subject, just on the one we are now, will you state to the board whether a railroad track couldn't come down Santa Monica Cañon without coming up to the beach at all?

Mr. HOOD. They could do so very readily, and cross our track either at grade or below our track, but most properly a grade crossing. They could do it with great ease, and they would have no steeper grade than we have getting from the beach up to our upper yard, which everybody is acquainted with at Santa Monica. It is just a question of details where any other company would choose to try to come in.

Mr. SHORB. But they would be forced to go across your track if they came down the cañon.

Mr. HOOD. Unquestionably. But you are perfectly well aware that the only penalty for that would be that they would pay for the iron crossings and keep them up. Now, next, if I am not hindering your board with too much detail, the property shaded in red here at San Pedro and Wilmington is the property owned and claimed by the Southern Pacific Railroad, and through them the Southern Pacific Company. The property shaded in yellow is property practically owned, a controlling interest,

by individual members of the Southern Pacific's board of directors. It goes, you see, 1½ miles above Point Fermin Light. And this map extends clear up to Wilmington, showing in that pink tint the Southern Pacific property which they own and claim. If you will give attention to that form of language you will see I don't assert anything but that we own and claim. In other words, we have rights, more or less, to all the property shaded in pink. Some of it we have a controlling interest in. Some of it we absolutely own. And the company practically owns that yellow strip going a mile up the coast from Point Fermin Light. In other words, the Southern Pacific Railroad Company owns and controls opposite the proposed breakwater, which is indicated by these dotted lines, this 4½ fathom line, every particle of property there is, with the exception of a small piece at Timms Point. Every article of property, excepting, of course, the town lots at San Pedro.

SOME ONE. Might I ask whether the Southern Pacific owns that land that is marked the "Government Reservation" here, sir?

Mr. HOOD. They have a title to it, which is what I state as owned and claimed. I will say, gentlemen, about this title, that I understand this is not a court of justice, in which we try land claims. I simply assert that this property is owned and claimed by the Southern Pacific Railway Company.

Mr. WELLS. I understand it is not the desire of the board—

Col. CRAIGHILL. We don't want to go into these details.

SOME ONE. We only want them to represent what is so, gentlemen.

Mr. WELLS. There will be an opportunity given to San Pedro when the time comes to controvert any statement which is now made; but now is not the proper time.

Col. CRAIGHILL. I wish Mr. Hood would not be interrupted.

Mr. WELLS. Proceed, Mr. Hood.

Mr. HOOD. Well, gentlemen, I think it is quite certain that whatever attacks may be made on the Southern Pacific Railroad Company's title, it will be the province of our law department to defend it, and not us.

Mr. WELLS. Have you other points you wish to take up?

Mr. HOOD. Those points I will leave to you, gentlemen.

Mr. SHORB. I would like simply to say one word; and it will not take more than five minutes.

Col. CRAIGHILL. In connection with that?

Mr. SHORB. Yes, sir. The reason we gentlemen claim is the fact it has been asserted through all the newspapers——

Col. CRAIGHILL. We don't care a copper for what the newspapers say.

Mr. SHORB. That they own this whole thing here and that, therefore, the only chance the public would have would be to use this out here, rather than here. And that is the only reason we bring it up here.

Mr. HOOD. I have only to say, Mr. Chairman, in further answer to the question which was asked, as to why the railroad company, the Southern Pacific Railroad Company, preferred the site that we have just been discussing, westward of Santa Monica Cañon, that, as I said, the Pacific Coast Steamship Company urged it; and I file with you a copy of a letter which we received, of which I will only take the time to read one sentence. This is written September 16, and addressed to Col. Charles F. Crocker:

"SAN FRANCISCO, *September 6, 1892.*

"DEAR SIR: Referring to your favor of even date, we are unable to find any letter addressed to you on the subject of the wharf at Santa Monica.

"The recollection of the writer, C. M. Goodall, was that Mr. Stubbs wrote to us, and Captains Goodall, sr. and jr., called on Mr. Stubbs, and he took us into your office where the matter was discussed with you, and at the time Capt. Goodall, sr., urged very strongly that the wharf be carried as much to the northward of the old Santa Monica wharf as possible.

"Yours very truly,

"GOODALL, PERKINS & CO.

"Col. C. F. CROCKER,
"*San Francisco, Cal.*"

"From Arcade depot, Los Angeles—	Miles.
To Santa Monica	17.1
To end of new Santa Monica Wharf (St. 168+86.6)	20.3
To San Pedro	21.8
To end of new San Pedro Wharf (St. 170)	25.0
To Cold Water Cañon Quarry via Soldiers' Home Sta	20,2
"From end of new Santa Monica Wharf—	
To Cold Water Cañon Quarry	14.0
To West Glendale	29.0
To Dundee	35.2

"NOTE.—West Glendale Quarry, 1½ miles from main line; Dundee Quarries, 4½ miles from main line.

"Hence, from West Glendale Quarry to end of new Santa Monica Wharf, 30.5 miles; from Dundee Quarry to end of new Santa Monica Wharf, 39.7 miles.

"Either of these quarries are 4.7 miles farther from new San Pedro Wharf than from new Santa Monica Wharf.

"Cold Water Cañon Quarry to end of new San Pedro Wharf, 45.2 miles, or 31.2 miles farther than to end of new Santa Monica Wharf."

I will file another letter from Goodall, Perkins & Co., or a copy thereof.

"SAN FRANCISCO, *March 28, 1892.*

"DEAR SIR: Yours of the 26th instant referring to the matter of the proposed wharf at Santa Monica is at hand. The writer begs to state that he called upon you a few days since and was kindly referred to the engineer who was in charge of the work, who seemed to have a realizing sense of what was necessary to be done.

"In the matter of pointing the dock towards the swell and also of ascertaining the bottom, we showed him a specimen of work which had been done in similar cases by Mr. Westdahl, assistant to Prof. Davidson, and advised that before the wharf is located at the outer end that a more thorough survey be made, so that if there should be spindles, or bowlders, or shoals of any kind in the way, that they would be known before the wharf is located.

"We left the name of Mr. Westdahl with the information that if his services were decided upon it would be necessary to apply to Prof. Davidson, the superintendent of the Geodetic Survey of the coast, who has the whole matter in charge, and who is very kind and considerate in rendering assistance and affording information when it is needed.

"The extract from the executive document seems to pretty fully state the conditions of the prevailing winds and seas. The best that can be done to offset the influence of these, which of course can not be prevented, is to build the wharf strong and sufficiently high so as not to be struck by the waves, and fastenings sufficient to hold the vessesls without being carried away, and moorings that vessels can tie to while lying at the dock.

"As stated in ours of the 24th instant we will detail some one of our old coasting captains to attend and suggest such arrangements of this as experience shows to be necessary and desirable.

"It is a fact that vessels sometimes can lay out a pretty heavy blow (rather than go to sea) and be ready to haul in as soon as the weather abates. Our idea is that in the particular spot where you are proposing to build the interference from such seas as will compel a vessel to put to sea are very rare.

"Yours truly,

"GOODALL, PERKINS & CO.,
"*General Agents.*

"J. C. STUBBS, Esq.
"*Third Vice-President, Southern Pacific Company,*
"*San Francisco, Cal.*"

I need hardly mention that the place where a vessel is most likely to lay out a heavy blow is the place where breakwaters can be most cheaply built and maintained. And in reference to other reasons why this company proposes to go to Santa Monica, I will say, in brief, that the Southern Pacific Railroad Company, as you all know, is a corporation. It has many million dollars at stake; more million dollars than we care to go into at present. That it is not accustomed to build a wharf 4,500 feet long, the length of which is chiefly for ample facilities, without a good reason, when they have ample facilities at San Pedro. But it has been borne in on this company so positively and so peremptorily by what you might call nature, in one sense, and that is the amount of freight and passenger business, which comes very nearly following the laws of nature, that any company who relied wholly for their connection of rail with ships on San Pedro would go to the wall. Now, the Southern Pacific Company does not care to go to the wall And we are building, without any reference to any breakwater proposition or deep-sea harbor proposition whatever, a wharf at Santa Monica on the site that has been discussed, which will ten months of the year take safely, we think, any seagoing vessels, any coasting vessels, or any other vessels that choose to come there. We are going to carry that to completion, and the expense will be very great; and that is where we are going to do a great deal of business. And it is so obvious to any business man that a company like the Southern Pacific Company is not going to make that expenditure for any other reason than the actual necessities of the case, the calls of the country. That, I think, needs no further demonstration. Gentlemen, I have nothing further to say, unless you have some questions.

Mr. CARPENTER. Mr. Hood, one gentleman who spoke with reference to San Pedro Harbor, said you had a deep-sea harbor at Santa Monica, and then you would have to have another at San Pedro for smaller vessels. What have you to say about that?

Mr. HOOD. I did not understand fully why a small vessel can't go where a large one can. It is a novel proposition to me, and it is one that obviously requires thought, and I haven't given it any.

Mr. WIDNEY. I think you misapprehend the statement.

Mr. CARPENTER. The stenographer has it and can read it after a while.

Mr. HOOD. I certainly do.

Mr. WIDNEY. If I have the floor I can state what I said.

Col. CRAIGHILL. I think that is a question we can decide for ourselves.

Mr. CARPENTER, That is all, sir. That is all we have for the present, Mr. President.

Mr. WELLS. The board desires next to call upon Redondo for the presentation or their facts and figures.

Mr. STEPHENS. We will ask the privilege of having a statement from Mr. Walton, who is the agent, I believe, of the Atlantic and Pacific Steamship Company.

Mr. C. S. WALTON. Col. Craighill and gentlemen of the board, it was my purpose, which I still adhere to, to address this board on a broader idea of the commercial aspect of a deep-sea harbor on the southern coast than can be included in the claims of any one particular point, particularly the contesting locations for harbors that are disputing for supremacy here. I will say, however, that the steamship line which I have the honor to represent has had some experience at Redondo which has been entirely satisfactory to them. The port has presented advantages to the captain of the steamer recently arrived at that port, which I can simply repeat from hearsay, from the statements he made to me, and that was that during the ten months of so-called smooth weather that we have here even the open roadstead at Redondo was entirely adequate for the ordinary demands of deep-sea vessels, but that during the time when southeasters or southwesters were liable to come on it was the impression of that particular gentleman that the protection offered by Point Vincente—I think it is the point that appears off to the right as you look to the sea from Redondo off to the left and the extreme northern end of Catalina Island—would form a certain natural breakwater, which would be valuable in protecting that port from storms which arise in the south, and, as several gentlemen here, principally my friend Capt. Polhamus, stated, those storms do start in the southeast and southwest and veer around westerly and expend their force off in the northwest. And it was for that reason that this captain, who is an old sea-going man, deep-sea sailor, thought that Redondo possessed peculiar advantages in being protected from the south and southwest anyhow, and requiring only that protection which comes from the storms appearing off west and northwesterly. I hope, before the meeting is over, to have the opportunity of speaking to you, gentlemen, on the commercial aspect of this whole enterprise. I have nothing further to say in regard to Redondo in particular.

Mr. STEPHENS. Well, Mr. Walton, let me ask you what your future plans are with respect to your vessels coming to this coast. Where will they land?

Mr. WALTON. I will say, sir, at present we have a vessel on the way, shortly to arrive here, a large steamer, the *Connomore*.

Mr. STEPHENS. Where is that from?

Mr. WALTON. From New York, carrying between 4,000 and 4,500 tons. We also have a clipper loading in Antwerp, providing the cholera does not make any trouble with it. We also expect a clipper from New York. We have another steamer in New York now about to go on berth to load. I can not outline the future of the company any further than that.

Mr. STEPHENS. Is it the design of the owners that those vessels shall land and discharge at Redondo?

Mr. WALTON. Those vessels are practically engaged to land and discharge at Redondo.

Mr. STEPHENS. Were those arrangements made after your experience with your ship which has landed there and after the report of the captain?

Mr. WALTON. A portion of them. Some were made; in fact the owners considered it very desirable to have the report of the captain of the *Progreso*, which was the first ship appearing at Redondo of our line before going into the thing more than as an experiment. But they were very well pleased, and the arrangement continues in force to land vessels at Redondo, for the fact largely that there is a great saving in time by landing at what at that time seemed to be the nearest harbor for Los Angeles that offered the greatest amouut of business. Is there anything further, colonel?

Col. CRAIGHILL. Not that I know of.

Mr. STEPHENS. Mr. President and gentlemen of the Board, I shall say a few words in behalf of Redondo. It seems to me there are two questions as to the location of a deep-sea harbor; two questions as to the approaches. First, we want to know when the harbor is created whether it is available upon the land side, because a harbor which is not available to the shore, and to which all the people have not access,

is not a very good harbor. It also ought to be accessible upon the ocean side. Both these considerations are important. I have this to say in behalf of the gentlemen who control the land about Redondo Beach, that, so far as their action is concerned, they will act in the future as they have in the past. They will invite everybody to come to Redondo Beach; every corporation which carries a car; every individual who can drive a wagon and bring freight to deliver at that point or to carry it away. Their policy has been a policy of public spirit, and I believe that every member of the chamber of commerce would corroborate what I say in regard to that.

There is already in existence at that port a railroad; I think the greatest on the continent, the most liberal on the continent, and a railroad to which this community owes more than to any other organization that exists in this country. I would state to you, gentlemen, and I state it as a citizen and not as an advocate of the Redondo Beach Company, that the prosperity of this community dates from the day we first heard the whistle of the Santa Fe Railroad in this country. That is a fact which can be testified to by everybody in this county. Our prosperity dates from that moment. That great railroad enterprise is there. It does not have to get there. It does not have to condemn rights of way across other railroads. It does not have to build breakwaters of stone and iron out in the ocean, but is there to-day, with one end of its road in the waters of the Pacific and other branches at Boston and at Chicago. And I state again, for the gentlemen who back this enterprise, that their principal interest is not in building up a wharf, or a harbor, or a pier, but in building up the town in which they have cast their fortunes. And we will give bond, if the chamber of commerce wants it, that everybody shall have access, so far as they are concerned, to that harbor. Now, so much for the land side of this question.

We will turn our attention to the sea. As a matter of fact, as I have learned from the testimony of witnesses here and from statements of reliable gentlemen who are perfectly familiar with this fact, it is only about 3 miles farther from San Francisco to Redondo than it is from the proposed site of the Santa Monica Wharf. That is, for vessels passing through the Santa Babara Channel. And I understand from the statement of one witness here—I think the first captain of a vessel who testified in regard to the Santa Monica Wharf—that for vessels which pass around the islands and do not pass through that channel we are practically as near to San Francisco as this Santa Monica Wharf is. Then, so far as the distance is concerned between San Francisco and Los Angeles, between these two great commercial points, there is no practical difference between Redondo and Santa Monica.

Now, with respect to the location and the availability of this harbor. I have gathered from the testimony of all the witnesses who have made statements here to-day that the danger on this coast is the south wind. I gather that the storms come from the southeast; that their duration is from one to three days; that they wear off with the wind from the west and from the northwest. Now, then, as a matter of fact at Redondo it is utterly impossible—nature has made it impossible, and nature has done much, very much, for this location—nature has made it impossible that we should ever suffer there from southeast winds. There are the Palos Verdes Hills which rise so high. Nature has almost made a perfect harbor there. And when I come down to the statistics I am going to be a little easier upon them, because I fear if the Government knows how safe a thing it is to ship and receive freight at Redondo they may say that we don't need any Government money out here at all. That is the danger I am in. I will have to curb myself a little, in order that we don't knock out this whole plan of appropriation for this coast. And I will give a few statistics about the shipping there—I am not going to read any long documents to you, gentlemen, I believe it is only about one page—very briefly and concisely stated in the document which will be handed to you, gentlemen. And I don't know that we ask that this be forwarded to the Government at all.

The following shows the amounts of freight landed at Redondo by the various steamers during the past three years:

Years.	No. of steamers.	Total tonnage.	Monthly tonnage.
1889 (from opening of wharf in June until Dec. 1)	85	8,261	1,180
1890	182	26,835	2,236
1891	194	29,187	2,432
1892 (to Aug. 31, eight months)	192	20,098	2,512
Aggregate	651	84,381	.....

One hundred and twenty tons per steamer.

And I interject here the statement that there has never been a steamer lost at this port, and never any serious injury to any steamer in that port. I will state also, which I believe can be backed up by the statistics without going into them, that the holding ground of this port is excellent; that it is as good as any in this quarter of the country if we need it. It is not very often that we need it there, because, as a distinguished military officer stated in my hearing the other day who has been in this country some time and most of the time at that place, there were 360 days in the year when a steamer could lay in perfect safety alongside the pier at Redondo; 360 out of the 365 days. And let me state to your honorable Board that the history of our storms here is such, that if a storm is brewing and gathering and blowing from the southeast vessels laying there can haul off to sea and be out of any danger if it could possibly reach that point.

These are the merchant vessels: Lumber vessels, from June to December 31, 1889, 18 vessels, with, in round figures, 6,000,000 feet; in 1890, 29 vessels, 10,000,000 feet; in 1891, 61 vessels, with 21,000,000 feet; and to August 31 of this year, 39 vessels, with 14,000,000 feet, aggregating over 50,000,000 feet of lumber, or 350,000 feet of lumber per vessel, in addition to the steamers and sailing craft mentioned.

A few months ago the British ship *Kirkwood-Britisher*, one of the largest sailing vessels, of deep draft, arrived direct from Antwerp, and discharged her cargo of 1,700 tons alongside of the wharf and into the cars with ease and safety in the remarkably short working time of seventy-three hours.

There has also arrived from New York, within the past month, at Redondo the *Progreso*. This is the vessel mentioned by Mr. Walton, and he has detailed the safety with which she landed, and it was satisfactory to his employers. And I would like to state here that at this time, omitting of course lumber and coal, I am informed, and have no doubt that it is true, that Redondo Beach has received 60 per cent of the merchandise which comes seaward to Los Angeles; 60 per cent to-day.

Now in regard to the feasibility of a whart at that point. I am sure that I know nothing about it, but I am informed that a breakwater can be constructed there; either a floating or a submerged breakwater. About these things I know absolutely nothing, and of course you gentlemen do not want to hear from anybody on that subject anyway.

We think that, so far as improvements are concerned here, the Government can, by a comparatively small expenditure in a floating breakwater, protect us in the 5 days out of the 365 when we need any protection. I am told that this can be constructed at a cost of one-tenth of what a breakwater will cost. I don't know anything about that. I am told that. You gentlemen must find that out yourselves. If it be true, it is much wiser for us people of Los Angeles to ask for something that we can get rather than have a $4,000,000 breakwater, which will almost break the Government. As a matter of fact it took a great number of years, 5,000,000 people, a strong combination of States having Senators and Representatives all in their interests, to accomplish an appropriation of $5,000,000 or $6,000,000, I forget which, for Galveston. It was at great difficulty. We talk about building harbors, or of $5,000,000 or of $4,000,000 and extending them indefinitely any number of miles through the ocean for the accommodation of everybody, as if we had this whole matter in our hands. It does seem to me that we ought to moderate our views a little and ask an appropriation and improvement which will be acceptable to the Government. We already have at San Pedro a very good harbor for light-draft vessels. Of that there is no doubt. The great bulk of our lumber comes in light-draft vessels from the upper coast and is landed at that place. And all we need to provide for is the seagoing vessels. We have almost done it at Redondo, and a little aid from the Government we think will accomplish the whole matter; and we respectfully submit that Redondo offers more natural advantages than any other place, and we respectfully submit that the necessary protection can be afforded by the Government there at very much less expense than elsewhere.

There are statistics contained in the report of Col. Mendell which will be read before your honorable Board. Of course I will not consume the time in undertaking to read it, except that I will say this: That when he examined this port at the instance of the gentlemen who founded it, he prophesied the very results which have been accomplished by these gentlemen. And I want to say, further, in regard to that, that this enterprise has been launched and has been sustained and backed up by gentlemen of very large experience, by the Messrs. Thompson and Ainsworth, men of age and capital and great experience in navigation. They saw this harbor; they took possession of it, bought it. They have spent a million and a half of money in and about that harbor; upon the pier; upon their hotels; upon railroads; and we think that the people of this community would rather that they and the Santa Fe should have Government support and appropriations than any other enterprise in this country.

And let me say something I ought to have said a little further back; that the Southern Pacific, by running a spur from the San Pedro line, can reach this port in

10 miles. That the terminal road, which we all hope is the Western congeries, because they have a number of roads centering here, that they are a part of a grand transcontinental system which would reach here from Salt Lake City; they can reach this port within 10 miles, and they will be welcomed when they come, and no man will stand in their way.

Mr. WELLS. Are there any questions the Board has to ask the gentlemen? Are there other gentlemen you wish to have heard?

Mr. STEPHENS. There are gentlemen here who are perfectly familiar with the mooring, with the holding qualities of the sea there—Capt. Ainsworth and Capt. Thompson.

Mr. WELLS. Would the Board like to hear on that point? The Board would like to hear on the holding capacity of Redondo.

Mr. STEPHENS. Capt. George J. Ainsworth. Captain, will you please state, in your own fashion, the manner of landing the vessels there, and the moorage?

Mr. AINSWORTH. The vessels formerly used their own anchors in landing, in coming to a stop before they approached the pier. But afterwards we supplied the harbor with very heavy mooring, so as to insure any vessel against going ashore in any storm that might occur. Those moorings were placed in under supervision of Capt. Bruce, the marine surveyor of the Firemen's Insurance Fund of San Francisco; and when a vessel is attached to those moorings their insurance is just as light as when lying in the harbor.

Maj. HANDBURY. Can you tell us, Captain, about the weight of these anchors?

Mr. AINSWORTH. The heavy mooring placed down by Capt. Bruce, they have two anchors fixed in a bridle arrangement in a fork.

Maj. HANDBURY. Are they anchors or are they——

Mr. AINSWORTH. They are anchors. One weighs 8,000 pounds and the other weighs 6,000 pounds. The chain is 2-inch chain. Links are 2 inches in diameter; and 190 fathoms of that chain attached to a boiler-iron buoy.

Mr. STEPHENS. What is the holding ground there, Captain?

Mr. AINSWORTH. It is a very good holding ground. I have never known the anchor of any vessel to drag. It is a sand and clay.

Mr. STEPHENS. What vessels stop at your port now; at your wharf?

Mr. AINSWORTH. All steamers coming south of Goodall, Perkins & Co. and Willamette supply the Willamette's Lumber Yard and Clark and Humphreys in the interior.

Mr. STEPHENS. That is, the Pacific Coast Steamship Company?

Mr. AINSWORTH. Yes, sir.

Mr. STEPHENS. Navigating the southern coast?

Mr. AINESWORTH. Yes, sir.

Mr. WELLS. Are there any questions which the Board desires to ask?

Maj. RAYMOND. Is there any rock in the vicinity of the anchorage of Redondo?

Mr. AINSWORTH. No, sir; it is all open and clear. There are no hidden obstructions of any nature.

Mr. STEPHENS. I think that is all, gentlemen. We desire to be brief.

Mr. WELLS. The Board desires to know whether there are any other localities which would like to be heard, embraced within the limits of the investigation which they are making. If so, an opportunity will be given for them to be heard. There does not seem to be any.

Col. CRAIGHILL. Now, gentlemen, we have heard from the advocates of each of these three places, San Pedro, Santa Monica, and Redondo, the details of the claims of each for the location of the breakwater; that is to say, the merits of each have been discussed. We will begin now with San Pedro, and if those who represent San Pedro have anything further to say in that direction we are ready to hear it, and we shall be very glad to hear them. And if they have anything to say with reference to the demerits of Santa Monica or Redondo, we want them to say it now.

Mr. WELLS. Will somebody representing San Pedro call out and introduce the speakers?

Mr. SHORB. I prefer having Capt. Johnson called for the present.

Mr. WELLS. Capt. Johnson, you have the floor to proceed as you wish.

Mr. H. C. JOHNSON. Well, I will say the little facts I know about the harbor. I came here in 1852, in December, forty years ago, in the bark *America*. I went to anchor in the bay of San Pedro; rode out two heavy southeasters with safety; two anchors, one with 45 and the other with 50 fathoms of chain. Then from that time until 1854 I lived at San Pedro, on the point which they call now Timms Point, in that neighborhood. Saw vessels coming there, few, as a matter of course, and two little steamers that were running there then, the only steamers on the coast—the *Seabright* and the *Ohio*. And they got there in all kinds of waters, and, with the exception of one losing her anchor once without having their chain shackled, there was never any trouble about riding out the gale, so far as the holding ground was concerned, within a couple of miles of the bluff. Southeast from there to here, there is more

or less loose sand. Of course, in the southeast wind, the only wind that is liable to do any damage, the vessels would naturally drift inshore toward the water where the anchorage will hold better. In 1854 I was engaged by John Ord, the United States surveyor at the time, to run him about the coast, surveying—him and his party. I was engaged—the vessel and myself. And I got in the bay of San Pedro there in all kinds of weather during the winter months in 1853, 1854, and 1855, and part of 1856; got to anchor there in the night and day, and all kinds of waters, and I never had any trouble of laying there safe, as far as the anchorage is concerned, to hold, as long as the moorage and tackles are good. Since that time, for fourteen years, I was running in and out the bay, night and day, any kind of weather, summer and winter; anchored in every place and any place within the anchorage as laid down in our official chart, and never had any trouble. And from that time I stopped following the sea and having anything to do with the vessels. But I resided in the neighborhood and saw every vessel there. And no vessels ever dragged their anchorage who had their anchors clear. Those who dragged their anchorage either parted their chain or they had a fouled anchor which they neglected to clear before the storm came up.

Now, with regard to the inner harbor, we all know there is about 18 feet of water there to go over at high tide. Vessels go in there and they are well secured. They are like in a pond when they are in there. And the outer harbor is protected from all winds, with the exception of the east and southeast. The southwest wind that is prevailing here during the months of February and March, and sometimes a part of April, they are the strongest gales we have on this coast, which every seafaring man knows, because they blow more towards shore than any other wind; raise a heavier sea. San Pedro there is protected by Point Fermin. It is only the wind from the east and southeast. Catalina Island protects part of the harbor, but not sufficient for vessels to lie perfectly smooth in smooth water.

Now, with the money that has been expended in that harbor there, with very little breakwater in sufficient water there to build it on a solid foundation, which is not to be found in every other place, a small breakwater would inclose there a couple of thousand acres for their deep-sea harbor. The inside harbor is nearly as good as finished. And we would have plenty of facilities for all the railroad companies, for all the community that would ever live in that neighborhood, for warehouses and everything else; lots of fine level soil, and the facilities would be great. I heard a gentleman this morning speaking about ships going up to the Columbia River to get to Santa Monica. I have followed the sea since 1841, and I couldn't think even Columbus himself would have traveled so far to find the port of San Pedro or Santa Monica, as to go to the Columbia River. Any vessel—or in fact to make it short, allow me to state that we must in the future look to our trade by water. We expect to have communication from South America, West Indies, or at least Central America and Mexico. To have that trade we are nearest to Los Angeles of any of the towns.

In regard of making harbors, what does a seaman want? A good light-house? We have got it in San Pedro. We have got Catalina lying out there for a point of land to navigate by. We have a Government reservation at San Pedro, if the Government wants to build any fortification or anything. They have 500 square varas of land there and, in fact, any facility anybody wants to have for the sake of a harbor.

Now, in regard to the time between San Francisco and here, the freight and the passenger traffic that has been carried in former years is nearly done away with. Everything goes by railroad that come from there. We must not look to San Francisco for our trade. We must look to the East by water to have cheap transportation. Consequently, if we get it by water we are nearest to Los Angeles of any port. Any little freight or passengers that come from San Francisco to Santa Monica they gain a little time, that is true. But, outside of that, what is there in Santa Monica to protect shipping? It is open to the south, and we know we have heavy gales from the south and southwest. They speak about water being smooth there. I have been there hundreds of times, and always found plenty of surf for the bathers to bathe in, and heavy swells. I have known vessels to drag there, and they had to send steamers there in the month of May, 1878, to pull them out, keep them from going ashore, heavy swell, undertow, and one thing and another. Anchors didn't hold up laying alongside of the wharf. They were destroyed there.

In regard to the anchorage outside in Santa Monica, I can't tell, for the reason I never sounded much, other than the Point Dume. I was up there with John Ord, and he sounded there and put some signals ashore.

In regard to Redondo, my friend here has said all that could be said in regard to it. There is deep water, plenty of it; protected from the southeast, it is true, but it is open to the westward. If the gentlemen wish to inquire in regard to anything else I would like to state. I don't like to take up all your time.

Col. ROBERT. Captain, which do you consider as more protected from the worst storms, Santa Monica or San Pedro?

Mr. JOHNSON. Well, San Pedro is more protected, because from the heavy northwesters, and particularly the heavy southwesters, San Pedro is protected. You can simply lay safe there.

Col. ROBERT. Now, take the southeasters. Are they not the worst storms when they do come?

Mr. JOHNSON. No, sir. They always come with rainy weather, and when it rains the sea is patted down by the rain. The harder it blows the harder it rains and the smoother the water is. But a southwester often blows without any rain, and there is a heavy sea. The whole ocean is open from the southwest to come in, while from the southeast winds the wind generally starts from the north-northeast or east and goes around to the southeast or southward. As soon as the wind hauls to the south, San Pedro is protected more or less by Catalina Island. That is only 20 miles off. And, consequently, the next day, inside of thirty-six hours, the wind hauls to the southwest and westward, and goes to the northwest somewhere. But as soon as it hauls beyond south we are protected in San Pedro by the island; and then southwest, Point Fermin cuts off the sea. The southwest winds don't affect the bay of San Pedro at all.

Mr. WELLS. The Board desires to give an opportunity to Santa Monica, or Redondo, Santa Monica first, to ask any questions of the gentleman who is now making statements; and, in order that there may be no confusion, I will ask that anyone who wishes to ask a question first obtains the floor for that purpose, and then we will have no confusion whatever. Santa Monica will have the right to ask any questions first through any representative they may select.

Mr. CARPENTER. With regard to the gentleman on the stand, we have no questions.

Mr. WELLS. Then Redondo will have an opportunity.

Mr. STEPHENS. Redondo has none.

Mr. WELLS. Then that is all, captain.

Mr. REYNOLDS. I have a report from the San Pedro people, which can be handed in, or——

Col. CRAIGHILL. I will say, generally, that anything that can be given to us in writing we would prefer to have it.

Mr. REYNOLDS. Shall I read it or not?

Col. CRAIGHILL. Just as you prefer.

Mr. REYNOLDS. The only question is there might be facts here which the other side might desire to dispute. It will take about 10 minutes.

Col CRAIGHILL. I think you had better read it, then.

Mr. REYNOLDS.

"*To the Board of Government Engineers in the matter of the location of a deep-water harbor for Southern California.*

"GENTLEMEN: In considering the question of the location of a deep-water harbor in the vicinity of Los Angeles, would beg leave to respectfully ask your consideration of the following points in favor of the port of San Pedro:

"First. It is centrally located for the territory to be accommodated, and for the various railroad lines of the country.

"Second. It is, of all available points within the limits indicated for survey, the one with the best natural shelter, having Catalina Island directly south, the jutting point of San Pedro mountain upon the west, and curving coast line eastward.

"Third. It is the nearest point to the quarries upon Catalina Island from which the stone to build the sea walls probably will be obtained.

"Fourth. The roadstead at this point has a firm bottom upon which to rest the weight of the rock in the walls, as shown by the fact that kelp, which is a sure indication of a rocky bottom, exists in a line parallel with the proposed breakwaters.

"Fifth. A submerged reef, extending from Point Fermin in a southerly direction three-quarters of a mile, affords considerable shelter for vessels anchored in the harbor now, by breaking the force of the heavy southwest swells before they reach present anchorage, and would be a natural foundation for a sea wall protecting the entire harbor from the southwest swell.

"Sixth. It is, by reason of its bold headland and the proximity of Catalina Island, well situated for harbor defense, which fact has been recognized by military engineers in the location of the Government reserve on the bluff.

"Seventh. Lying, as it does, at the extremity of a prominent headland, with its shore line dropping away upon either side, it affords ample sea room for sailing vessels approaching and leaving with the wind from any quarter; an advantage possessed by no other point within the limits set for the location of the proposed harbor. This feature in a commercial point of view is of exceeding importance.

"Eighth. It would not be necessary to await the completion of the whole work

before reaping the benefits, as the building of the first 1,000 feet of the west wall would afford shelter for the basin to be inclosed, except during southeast storms, which are of rare occurrence.

"Ninth. Situated, as it is, to the eastward of a high promontory, it is protected from the prevailing northwest winds, and in part from the southwest swells.

"Tenth. At San Pedro the strong set of the return current from the southeast against the headland and the deep water immediately beyond keep the bottom scoured, so the filling up, which is the greatest danger to all artificial harbors, is rendered impossible. This is proved by all Government charts issued between 1859 and 1890. The lines of the sea wall planned in the recent Government survey were designed expressly to take advantage of this feature.

"Eleventh. The submerged plain, while deepening within a short distance from the shore line to 25 or 30 feet at low tide, then becomes so nearly horizontal that, at a distance of a mile further out, the sea is only from 50 to 60 feet in depth. This feature renders possible the inclosure of a large area of deep water without having to build the walls in such a depth as to make the cost excessive.

"Twelfth. A deep-water harbor constructed at this point has the advantage of utilizing, for all vessels not drawing over 20 feet, the ample water frontage of the inner harbor of San Pedro, now nearly completed, thus leaving the deeper water without clear for the deeper-draft vessels. When it is remembered that the greater proportion of vessels seeking a seaport are of this lighter draft the economic advantage of thus being able to save the deeper wharfage for the larger vessels and avoiding overcrowding becomes apparent, as it renders possible the accommodation of a much more extensive commerce without adding to the cost.

"Thirteenth. Respecting the holding ground at the present anchorage at San Pedro (said anchorage will be inclosed by the already proposed breakwaters), we assert that it is the best and has been so conceded by all vessels which have anchored there for the past thirty years, the formation being clay and sand, with no great depth of sand. We refer you to the past record of the proposed inclosure as being the safest anchorage ground on the coast.

"Fourteenth. The construction of a deep-water harbor at this point thus economizes and utilizes the heavy expenditure which the Government has already made upon the present harbor of San Pedro, which then becomes, as just shown, the inner harbor of the new work.

"Fifteenth. The already large water frontage and the branching channels of the inner harbor admit of much greater development than is yet found necessary. These sheltered waters, besides the facilities for handling freight, afford ample space for the building and repairing of ships, which must be carried on at every important seaport.

"Sixteenth. Before the work of improving San Pedro Harbor was inaugurated by the Government, three separate surveys by different Government engineers were made at intervals of several years. These surveys included the coast line both north and south of San Pedro.

"All three reports concurred in designating San Pedro as the most suitable point for such work. These three separate and distinct reports have been further confirmed by a resurvey, made by a full board of Government engineers, less than two years ago, who again decided that the port of San Pedro was the proper point for the construction of a deep-water harbor, possessing advantages not found at any other place.

"Respectfully submitted.

"MERICK REYNOLDS,
"*Chairman Citizens' Committee.*"

Mr. CARPENTER. If the board please, we will ask leave to reply to that document in writing. We will look over it, and such parts as we think have not already been met by our evidence we will ask leave to reply to specifically in writing, and file it with the board.

Col. CRAIGHILL. There is no objection to that.

Mr. WELLS. Now, has Redondo any question that they wish to ask the gentleman?

Mr. STEPHENS. I suppose not, sir.

Mr. WELLS. Has San Pedro any other gentleman who wishes to be heard?

Mr. SHORB. I would like to put Capt. Polhamus on the stand again. The captain has already given his evidence to you, gentlemen, as to his knowledge of San Pedro. I believe now it is in order, Mr. Chairman, to give you his ideas of Santa Monica Bay. It is in order, is it not, sir?

Col. CRAIGHILL. I suppose there is no objection to it. Go on.

Mr. POLHAMUS. The general-in-chief of the Santa Monica forces remarked there had been no marine disaster at Santa Monica. I would like to state what befell the bark *Frank Austin*, the only deep-water ship that ever attempted to land at the Santa Monica

wharf. She went in there full laden, under the assurance of the water men; struck bottom. And the steamer *Santa Cruz* happened to be there, and he paid the steamer *Santa Cruz* $2,000 to tow her to San Pedro. There was a gang of men put aboard of her and she was discharged; and men working on there night and day until the coal was discharged. And hadn't there been a steamer there I think there would have been a marine disaster there, and also a small-sized coal mine.

He also speaks of vessels sailing out there. The wind, he says, prevails there during the summer from the west, which is true. He then says that vessels can stand either north or south. This chart doesn't show it as well as the large one.

Maj. HANDBURY. Here is one over here.

Mr. POLHAMUS. This is from the west. Now, I have been on salt water a little, and I would like to know how a vessel laying in here can sail either north or south and get out of there with a westerly wind. I believe that was the statement this morning.

Capt. Stoddard, an old acquaintance of a good many years, said this morning that he could discharge a cargo there in a southeast gale, and a few moments after remarked that in calm weather he dropped his anchor there to hold on on account of the great undertow.

Capt. Ingalls, who was afterwards captain of the same steamer Capt. Stoddard was in, one time, in coming in to the end of that wharf, a breaker boarded him outside of the end of that wharf, and he told me very nearly wrecked his vessel. He didn't get near the end of the wharf. A sea got in and broke his stern, and he got away from there. I ask Capt. Stoddard if he remembers that.

Mr. STODDARD. No, sir; I never had such an experience.

Mr. POLHAMUS. I say do you remember that?

Mr. STODDARD. No; I don't remember that.

Mr. POLHAMUS. When the Santa Monica first started, a ship was laying at San Pedro, an English iron ship, loading with wheat, and one of the first wheat cargoes that left San Pedro. As is the case always when an English ship is laying near a new place, the English insurance companies always send out orders to their masters to go to that place and investigate the port and report to them. Capt. Evans told me, after he came back, that his report was that Santa Monica, that bight, laid in a bight of 90°; so a deep-water ship—while a fore-and-aft vessel might work out, a square-rigged vessel couldn't get out—a deep-water ship only had eight points to work, and with a ground swell on it was utterly impossible to do it in a head wind. Before she left, a French bark came in there, and the captain of the vessel got a letter to go there and look. And I always remember what the French captain said. I said, "Captain, how do you like Santa Monica?" He shrugged his shoulders and said, "Well, if you please, it is a very nice piece of water; very nice for the bath; very good for the ladies; very pretty legs; but no place for a sea-going ship." I have nothing more to say, gentlemen.

Mr. CORNELIUS COLE. Has there been any wrecks of vessels in the Santa Monica Bay?

Mr. POLHAMUS. None to my knowledge. The only vessel that ever went in there was the *Frank Austin*—deep-sea ship—and she was towed out.

Mr. COLE. How many vessels have been wrecked in San Pedro Bay?

Mr. POLHAMUS. In my memory, since I have been there, there has been several. There has been the bark *Annie*, the *Adelaide Cooper*, the brig *Calor*—well there has been several there lost.

Mr. COLE. The *America*?

Mr. POLHAMUS. The *America* was not lost, but she dragged over the bar and went to sea. And the ship *Kennedy*.

Mr. WIDNEY. Captain, how many deep square-rigged vessels was ever at Santa Monica?

Mr. POLHAMUS. There has been a few coasters there; what you might call square; brigantines and barks; but only one foreign vessel, the *Frank Austin*, that towed out of there.

Mr. COLE. I heard statistics of a great many vessels that landed at a certain place on that bay and had discharged cargo there in that bay—the bay of Santa Monica; a great many vessels; within the last three years.

SOMEONE. That was Redondo.

Mr. POLHAMUS. There have been, sir, and they have been either steamers or fore-and-aft vessels. Now they can work their way out of a shore where a square-rigged vessel can't, as any man knows.

Mr. COLE. The statement was there were never any vessels in that bay. Well, the fact is there have been a great many in there, and they have not been lost.

Mr. POLHAMUS. I never made that statement.

Mr. FISHER. I would like to answer with regard to the *Austin*. I was there when she came in and saw the whole thing. I would like to ask Capt. Polhamus if he knows how that vessel went ashore or how she touched the bottom?

Mr. POLHAMUS. Only from the captain's evidence. I know she was on the bottom by the amount of water that she was pumping out of her when I got there.

Mr. FISHER. The vessel came up alongside that wharf drawing about 18 feet of water, wasn't she?

Mr. POLHAMUS. I don't remember that.

Mr. FISHER. The captain, in his awkwardness, allowed his vessel to go in where the water was no deeper than the vessel; and I ask you if any vessel on earth wouldn't go ashore if she got in water that was more shallow than the draft of the vessel. I was there at the wharf and know all about it.

Mr. WELLS. Are there other questions to ask the captain?

Mr. CARPENTER. No other questions.

Mr. WELLS. Any other questions from Redondo?

Mr. STEPHENS. None.

SOMEONE. I would like to ask the captain a question, with all due respect to him. He said, "How would a vessel get out of Santa Monica with a westerly wind," didn't you?

Mr. POLHAMUS. No, sir.

SOMEONE. I thought you did.

Mr. POLHAMUS. No, sir; I did not say that question. I said that that English captain, Evans, said that there was only 90° in deep water or 8 points of the compass; and a deep ship, a dull sailer, would run great risk of running on shore.

SOMEONE. I would like to have the stenographer's reports regarding that statement. I think it was said that it was on a west wind.

Mr. POLHAMUS. I said either east or west.

Mr. CARPENTER. It don't matter.

Mr. WELLS. The correction of the captain will make it all right in the notes, probably.

SOMEONE ELSE. What is the reason there were more ships lost in San Pedro than have been in Santa Monica?

Mr. POLHAMUS. There was a great many more went there. And when we have a breakwater, which you will probably some day give us, you won't have any more.

Mr. SHORB. Mr. Chairman, there is a gentleman here from Long Beach that has a petition we would like to have presented to the Board in relation to the San Pedro Harbor.

"*To the Commission for the location of a deep-water harbor:*

"GENTLEMEN: We, a committee appointed by the citizens of Long Beach to furnish data for your consideration, respectfully submit a few facts for your inspection:

"First. On account of the Palos Verdes Hills to the west, the island of Santa Catalina to the south, and the long stretch of shoal water to the southeast, a much better natural protection from winds and heavy seas is afforded in San Pedro Bay than at any point in Santa Monica Bay.

"Second. A depth of water of 30 feet is had at a distance from shore of 1,700 to 1,800 feet at extreme low tide, and yet the 10-fathom curve is from 3 to 3½ miles distant from shore line, thereby giving double the area of water inside the 60-foot line than can be obtained at any other point between points 'Dume' or San Juan Capistrano. For correctness of this statement, see United States Coast and Government Survey Chart No. 671.

"Third. The bottom affords good holding ground for anchorage, which is attested by a number of old sea captains now present.

"Fourth. On account of nearness of good stone, viz, at Santa Catalina Island, and water transportation therefor, as well as that a larger area of water can be inclosed within breakwater at a less depth of water than at any other point under consideration, we believe that the harbor can be made at much less cost in San Pedro Bay than in Santa Monica Bay.

"Fifth. There are two railroads now on the ground, both roads coming to the ocean at Long Beach as well as at San Pedro, and room for all other roads that may wish to come in, and a traffic arrangement already exists between the Los Angeles Terminal and Southern California roads. Also, almost an unlimited frontage exists for constructing piers and wharves.

"Sixth. A line of breakwater off San Pedro on Long Beach, following, say, the 9-fathom line, could be extended from time to time, as fast as increasing commerce would demand, in an easterly direction until enough water would be inclosed to afford safe anchorage for an unlimited number of vessels.

"We herewith submit a map of soundings taken at Long Beach in May, 1892, and would further state that a contract is now let for building a pier at that point to extend into the bay a distance of 1,631 feet.

"Respectfully submitted.

"G. M. WALKER.
"KENYON COX.
"W. W. LOWE."

Mr. WELLS. It is now in order for anyone who wishes to ask a question of the gentleman on the point presented. From Santa Monica first.

Mr. CARPENTER. We don't wish to ask him.

Mr. WELLS. From Redondo? There are none.

Mr. DODSON. Gentlemen, I wish to state, on behalf of San Pedro, that Mr. Hood has shown that the Southern Pacific owns all the water front, which is not so. We had a suit, which was settled last week, which was decided by Judge McKinley, that the Southern Pacific didn't own 2,000 feet that we were at law with them about. And he also said they owned all the land from Timms Point to the Government reservation, which is not so either. It is a part of the town of San Pedro, is under the control of the town of San Pedro, and is private property.

Mr. CARPENTER. Mr. Hood didn't make any such statement as that. He showed the map, and excepted the property that are town lots in San Pedro.

Mr. WELLS. His statement is on record.

Mr. GIBBON. I would like to state that Mr. Dodson is one of the board of trustees in San Pedro.

Col. ROBERT. He so stated.

Mr. SHORB. I would like to call Dr. Widney.

Mr. WIDNEY. I don't propose, gentlemen, to make a review of all that has been said. I would like to ask the especial attention of my friend Judge Carpenter and Mr. Hood. I have heard an old saying that there are none so deaf as those that will not hear. I think if the gentlemen will listen this time carefully they will understand what I said. I said this: A harbor that is to handle our commerce must have a water front of from 6 to 8 miles. It means not alone shelter for deep-sea vessels, but it means shelter for all the schooners and light-draft vessels and the dockyards, etc. I said we are now using about 1 mile of water front in San Pedro. I said the proposed breakwater at Santa Monica would shelter possibly 1 mile of water front—no more than we are now using. The time will come when we will need at least 1 mile of deep-water front for deep-water vessels. What are you going to do then with your light-draft ships and docks and so on? You may ask the Government to build another mile at a cost of four millions more. By the time you get your 6 or 7 miles of water front it will cost from $24,000,000 to $28,000,000, because every mile of water front will cost four millions. You will have to build your mile of breakwater to shelter schooners the same as to shelter deep-water vessels. Now, I said the result would be this: You might possibly get the Government to build 1 mile, but no more. That would go to your deep-water vessels, and your light-draft vessels and dockyards are compelled to go to some other point, and then you have two harbors instead of one.

Now I think you understand me. I have been in the harbor business for years; probably before you, Mr. Hood. It was in my office that the plans were laid for the first subsidy that was given to the Southern Pacific to occupy this country a great many years ago, and I know all about it. I knew all of their engineers for years and years. I went with Governor Stanford over the harbor several times. For about twelve or fifteen years they simply said one thing: "There is no other point on this coast where we have even thought of going;" and they examined it all carefully. And Governor Stanford said: "I expect to live to see the day when our commerce, instead of San Francisco, goes to San Pedro." And they staid there for years; in the winter, when there were vessels there year after year. And that was the only point, when they tore their wharf down at Santa Monica, and said it was worthless. Now they want to change front and say, "We will go to Santa Monica." I am sorry to say, gentlemen, we have realized one thing in this country. The Southern Pacific came here and had everybody for its friend; but we have learned that when they want anything very badly our interest lies the other way. They have whirled front, after about fifteen years' use and advocacy of San Pedro, and gone to Santa Monica, and are building a wharf there. And I would advise our citizens to ask who owns the land right back. I don't know. I know some of my acquaintances were endeavoring to buy a certain tract of land down about Santa Monica Cañon, involving a great many hundred acres. The man said it was bid in for the Southern Pacific. It is gone. We have lost it. It is not in their name, but it is bought for them, and we have lost it. Here is a narrow strip of land in front of a bluff about 100 feet high, and the Southern Pacific has a right of way all along that; and that is where the breakwater is to go; and what chance has anybody else? At San Pedro we have two railroads in already. We have a large private ownership on the interior harbor, and the city retains part ownership.

Now, coming to the point in question, it is not a matter about which point is most exposed. As I said this morning, in the beginning of a storm San Pedro is more exposed and at the end Santa Monica is more exposed, and a breakwater will protect either. The point is, where is the place that we can get the Government to build a breakwater that will be large enough to do any good for the money they will give us? Now, if you go to Santa Monica, we simply have, at an expense of four millions, 1 mile of breakwater, sheltering 1 mile of frontage on one side. That is all; and the

Government is not going to give us $20,000,000. It wont do it. At San Pedro, however, we have the possibility of unlimited water frontage up to 20 feet inside, which is already partly made, and we only have to ask $4,000,000 to shelter all the deep-water vessels on the outside and that is all, and we have a harbor that will shelter all the commerce that is to come. We ought not to allow our selfish interest to come between us. The Government will only do so much. The breakwater shelter isn't the only point; but at San Pedro, with the assistance the Government has already been, we have miles of inside shelter already, and we only need enough additional to shelter a few deep-water vessels, and we have the harbor completed. At the other point we have to build miles of deep-water breakwater to shelter small craft or else have some at one port and some at the other.

There have been three shipwrecks at San Pedro. The statistics show for 1887 887 vessels arriving there; in 1888, 1,092. Now, for thirty years they have been coming there, and they have aggregated thousands of arrivals, and even in its unsheltered condition they lost but 3 vessels. At Santa Monica there have simply been light vessels, and it has not been tested. I believe I have covered every point.

Mr. WELLS. Has Santa Monica any questions they wish to ask of Dr. Widney?

Mr. CARPENTER. How many vessels do you say, doctor, have gone ashore at San Pedro?

Mr. WIDNEY. I understood the statement to be three.

Mr. CARPENTER. Well, what were their names?

Mr. WIDNEY. Capt. Polhamus, you are the authority upon that.

Mr. CARPENTER. Well, do you know anything about the the bark *Nick Biddle* going ashore in 1876; the bark *Calor*, February 8, ——?

Mr. POLHAMUS. I mentioned her name.

Mr. CARPENTER. The bark *Adelaide Cooper*, December 20, 1879. Do you know anything about that?

Mr. POLHAMUS. I mentioned her name.

Mr. CARPENTER. I am not now talking to you.

Mr. WELLS. I would suggest that this be confined to the doctor.

Mr. CARPENTER. I am questioning the doctor. The doctor asserted that but three vessels——

Mr. WIDNEY. Excuse me, sir. I said about three vessels. I have taken them as my authority, and I simply showed the small per cent. It may run three or four or five, but captain said about three.

Mr. CARPENTER. I have a list of nine here, running all the way from April 8, 1876, until September 26, 1888.

Mr. WIDNEY. As I said, however, these are unimportant points, because at either point a breakwater shelters, and so there will be no further loss of that kind.

Mr. CARPENTER. All right.

Mr. COLE. Can a breakwater be constructed in the harbor of San Pedro that will protect a vessel against the southeasters?

MR. WIDNEY. That is what the harbor is for, simply.

Mr. COLE. Will it shelter the vessel against those violent winds any harbor that can be made there?

Mr. WIDNEY. The line of the sea wall is directly between the vessel and the southeast. The statement of the engineers, made to me in San Francisco and also here, was, that with that breakwater built there was an absolute protection from the southeaster for about a mile of water front, as the most sheltered part of San Francisco Bay.

Mr. COLE. The question is, can a breakwater be built so as to shelter the vessel from the violent southeast winds? Wouldn't the harm be the same?

Mr. WIDNEY. The harm, certainly, to the rigging of the vessel, but it would afford protection from the swell of the sea that comes in. You never expect to shelter the rigging of the vessel.

Mr. COLE. Do they haul around with a greater degree of violence to the west than they have when it comes from the southeast?

Mr. WIDNEY. Our heaviest winds come from the west. It comes with a vicious snap we never get from the southeast.

Mr. COLE. Did you ever know of any vessels being driven on the shore from a westerly wind at San Pedro?

Mr. WIDNEY. Sir?

Mr. COLE. Did you ever know any vessel of the nine that have been driven ashore to be driven ashore by a westerly wind?

Mr. WIDNEY. I don't suppose it would be possible, because they are lying in the shelter of the land. When it gets to the west they have the reef and the Santa Monica Mountains.

Mr. COLE. Don't you know the violent and dangerous winds are the southeast?

Mr. WIDNEY. Yes; at Santa Monica the dangerous wind is from the west.

Mr. COLE. Did you ever know any violent wind from the west coming into the bay of Santa Monica or Redondo?

Mr. WIDNEY. I have heard of a great many. I have never been down there myself, personally; but I have had the newspaper reports and the persons who were down there at the time.

Mr. COLE. So as to do any damage?

Mr. WIDNEY. There were no vessels to do any damage to. They told me one time they had to run the train off the wharf for fear the wharf would go and the warehouse and all would go; and they took the train away on the land for fear it would get away with the whole thing one time when the wind was from the west.

Mr. WELLS. I think that is all, doctor.

Mr. SHORB. Mr. Chairman, as far as Wilmington and San Pedro is concerned, we will rest our case. We will leave the case just exactly where we felt inclined to at first, in the hands of these gentlemen. I have, with the permission of the Board, some statistics of San Pedro Harbor; and, as a part of our proof, we submit the report of the last Board of Engineers.

Mr. WELLS. Santa Monica now has the floor, Mr. Reynolds.

Mr. REYNOLDS. There is one thing we would like to have, and that is a copy of the answer to our report.

Mr. WELLS. I have no doubt Judge Carpenter will furnish you with a copy of that answer. Have you anything to present, Judge Carpenter, in the matter of Santa Monica?

Mr. CARPENTER. We will give it to him when we get it. Mr. President and gentlemen of the Board, we have no testimony to introduce, but I think, perhaps, it may be not amiss to make a few remarks upon the testimony that has been introduced and the statements that have been made by the gentlemen from San Pedro.

They seem to rest their case chiefly upon abuse of and distrust and denunciation of the Southern Pacific Railroad. What that has to do with the question before this commission I do not comprehend. I am perfectly aware that the gentlemen and their colleagues, and in the political circles, are making abundant use of it, but I do not understand what it has to do before this tribunal. If the Southern Pacific was on trial it could show that its iron horse came over the Sierras when this was a dense forest of wilderness and a sheep pasture and developed almost the entire interest. All the progress of the State was owing to that very development. And this is the gratitude that republics give to their savior. But the Southern Pacific has nothing particularly to do with this question.

Again, the gentlemen contend that they don't want a harbor at Santa Monica because the Southern Pacific has gobbled up everything there or will gobble up everything. Well, now, from their standpoint, the Southern Pacific has gobbled up everything at San Pedro, and yet they don't want a harbor at Santa Monica because the Southern Pacific may hereafter gobble up everything there. They have got you down to the water's edge.

SEVERAL. No, no.

Mr. CARPENTER. You can't get over a foot of their road or their track unless you condemn it. Now, how is it in Santa Monica? This gentleman, my distinguished friend, my high-toned and moral friend, after the testimony was upon the stand that the only right that the Southern Pacific Company had was a right of way along the beach 50 feet wide, still threw out the intimation that a lot of land there fronting the sea has been bought by the Southern Pacific, without a particle of proof, and there is no proof to sustain it. It is absolutely untrue. Now, I appear for Santa Monica as well. We say that is one reason why we should have a harbor—because Jones and Baker and others own the frontage, and the railroad company does not; that other roads have a right to come in there. There is room for them to come, and the attorney of Messrs. Jones and Baker has stated here upon this stand that it was a part of the condition of granting a right of way to the Southern Pacific to confine that line so that other roads should have a free passage along that beach. And yet the doctor intimates that the Southern Pacific has the land. Other roads can go there is the truth, and there is not a scintilla of proof to the contrary. A wagon-road does run along the beach parallel with the railroad, past the wharf the Southern Pacific are constructing. That anybody can see unless they are blind, if they are upon the ground, and that is a fact that is in proof before this Board.

Now, who has proved that Santa Monica is not a good bay? Anybody? No. Who has proved that the soundings are bad? Anybody? No. It is not necessary for me, and it is not necessary for the cause I represent, and the parties I represent do not wish that any attack should be made upon San Pedro. We have no attack to make upon Redondo. The people of southern California, and the people of Los Angeles especially, want a safe deep-sea harbor for the commerce of this magnificent country. We would rather have it at San Pedro than nowhere We would rather have it at Redondo than nowhere. We prefer Santa Monica, because as Mr. Hood said in his testimony, in the judgment of the company, nature has directed that as

the point of arrival and departure. The railroads have no option about it. If that is a nearer point by land, if it is nearer by sea, if you must pass Santa Monica with ships coming from the north or coming from Nicaragua to go to San Pedro, then the distance in time and distance in miles drives the shipping and the commerce to Santa Monica. This is an age of steam, of rapid thought, of rapid action; and if there is but a few miles difference, but a few minutes—and here the proof is at the lowest calculation it is between two and three hours—no gentleman on that Board need be told that the business will go to the point on the coast where Los Angeles can be reached most speedily and safely. This is not a time when men go 500 miles around, or 50 miles around, when they can save the distance. There are 6 miles difference between San Pedro and Los Angeles and Santa Monica and Los Angeles. That is enough to settle the question of itself. But, besides that, vessels that come down the coast stop to unload at Santa Monica, and then go on to San Pedro; making hours of difference in the time that passengers and freight would arrive here; making it, as the gentleman so well said, nature's point. And the road was driven there.

Why do you suppose the Southern Pacific Railroad that has been accused of being so bad, accused of being a robber, but never of being a fool that I heard of—do you suppose they pulled up their tracks in San Pedro, a dozen lines of road there and all their buildings, and all their expenditures, and have gone off to put them down in Santa Monica, in a new place, unless they were driven to it by the stress of commerce and necessity? Why should they have done it for any other purpose?

But after all, gentlemen of the Board, the question comes down to a matter of engineering, a matter of figures, and that you will determine from the proof that has been and will be laid before you. We want what is fair. We want no aspersions cast upon anybody, without some proof. We have cast none upon the other side. We have abused nobody; we have denounced nobody; we have questioned nobody's motives, and we humbly submit that nobody has a right, in the name of morality or conscience or any other thing, to question ours until there is some proof that they are wrong. We stand upon our manhood and our rights. We can defend Santa Monica without aspersing or lying about or abusing San Pedro or Redondo or any railroad under heaven. We stand upon the bottom of truth and of justice and of commercial economy, and the best interests of the people of southern California. And that is a platform, sir, that will stand when all these miserable insinuations, with their authors, are buried in eternal oblivion.

Mr. GIBBON. I would like to ask a question of Judge Carpenter. You have just spoken of the importance of saving two or three hours in the business coming from San Francisco. Wouldn't exactly that same rule apply to the business which will come from Nicaragua Canal to San Pedro?

Mr. CARPENTER. Yes, if it came that way. But the proof is, if you paid any attention to it, that it would have to come by Santa Monica to go to San Pedro. That is the proof that that would be the line of sailing vessels; that it would come there and go by Santa Monica.

Mr. DODSON. If a steam vessel was coming from Nicaragua, would she have to go above the islands to come down?

Mr. CARPENTER. No, I think not; but I think they generally do make that point, because it is the best view. But when Santa Monica has a harbor and a light-house they would steer precisely that way. Any more questions, gentlemen?

SOME ONE. Did I understand you to say, Judge, this was the age of steam?

Mr. CARPENTER. Yes.

SOME ONE. Does the steamer generally take a roundabout way to get a certain point?

Mr. CARPENTER. No. Nobody has been talking about a steamer.

SOME ONE. You said it was an age of steam.

Mr. CARPENTER. I do. There is steam from Redondo here, and Santa Monica here, and one is about eighteen minutes or twenty sooner than the other.

SOME ONE. Supposing we get steamers from Nicaragua—what then?

Mr. CARPENTER. My dear friend, nobody has this testimony—none of it applies to steamers. Everybody, I think, knows that a steamship can go against the wind, against the tide.

SOME ONE. Yes, sir. They don't go roundabout to get anything.

Mr. CARPENTER. Nobody has been talking about steamers but you.

Mr. WELLS. We want to get through with it as soon as we can.

Mr. CARPENTER. That is right. I am here to do so.

Mr. WELLS. Are there other questions for information which it is desired to ask Judge Carpenter from San Pedro? If it is not, Redondo will have a chance.

Mr. STEPHENS. We have none.

Mr. WELLS. Are there any gentlemen to hear from on the part of Santa Monica?

Mr. CARPENTER. I think that is all.

Mr. WELLS. Redondo will come next in the wishes of the Board. Has Redondo anything further to present?

Mr. STEPHENS. Nothing.

Col. CRAIGHILL. I think, gentlemen, we may thank you all for the very full discussion of the subject we have had from every point of view; and if there is anyone who wishes to say anything more we will sit to hear him, although I think we have had enough. But I will say this, that if there are any written communications that are to be made to the Board, we would wish to have them as soon as possible. And I think the best channel they could come would be through the president of the chamber of commerce, with whom we will leave our address. And we would be glad to have any further information as to facts. Those are what we want—facts.

Mr. WALTON. Mr. Chairman, I dislike taking up the time of the Board, and especially on the first subject that was alluded to at the meeting this morning, and that was the commercial necessities for a harbor. Our friend, Dr. Widney, and the honorable J. De Barth Shorb both made some statements in regard to the subject as it applied to sailing vessels, and to the Nicaragua Canal, and other possibilities. And I would like to take just one minute in which to make a statement as regards the way it applies to present conditions.

I wish to call the attention to this steamship line that has been running from New York to the Pacific coast, carrying over 50,000,000 pounds of merchandise in the past year from the Atlantic seaboard to the Pacific coast—great steel steamships that come by way of the Straits of Magellan to the Pacific coast, something like 14,000 miles, with but one stop. What condition are they in when they arrive here? They have steamed for twenty-two days from Coronel, Chile, which is the only stopping point where they coal. They arrive here. The first thing, almost, that is a necessity from an engineering standpoint, is to draw their fires and blow off their steam, and to begin to generally overhaul the vessel while she is lying idle. What conditions are those vessels in then? They have two or three iron masts that are used for the purpose of hoisting out the cargo; possibly, in case of great necessity, for hoisting sails upon; but they are not available. Those vessels, when they are in a harbor in southern California are as helpless, and more so, than the worst hulks that run up and down the coast. They have no steam and no motive power. They have nothing but their anchors to hold them. And while, during that 360 days our friends have spoken about wherein there is no necessity for more than a piece of darning cotton to hold these vessels right where they should be, there are five or six days when it is a vital necessity that they should have protection. I am speaking of present conditions; not of future conditions. These same vessels, that don't come around by way of Santa Monica to get into San Pedro any more they go by way of the Hawaiian Island to get into Redondo, they have been coming straight and are coming. And I say the present necessities are that we should have something in the way of a breakwater protection somewhere for these vessels. Although our commerce is from the south, the three points contesting are but a few hours apart, and it don't make much difference to us which is selected; but I simply speak of the commercial necessity and the immediate necessity of a breakwater somewhere, and where our cargoes, when they arrive, may be delivered in Los Angeles to the merchants at a reasonable rate. And, in order that they may have a reasonable rate, it seems to me eminently necessary that there should be more than one line of railroad from that harbor to Los Angeles to haul it.

Mr. SHORB. I move, sir, that the thanks of this assembly be tendered to the honorable Board for the kindly and courteous manner in which they have received all the information which has been given to-day, sometimes, and possibly by myself, in a way that might have been different.

(Seconded.)

Mr. WELLS. It is moved and seconded that a vote of thanks be tendered to the Board of Engineering Officers for the kind and courteous manner in which they have received all the information which has been given them. Are you ready for the question?

(The motion was put and unanimously carried.)

Mr. CARPENTER. Mr. Chairman, I wish to ask the gentleman if he will permit me to ask him a question?

Mr. WALTON. At your disposal.

Mr. CARPENTER. Who is the agent here of that line of steamers that you have been describing?

Mr. WALTON. I am.

Mr. CARPENTER. Well, I thought it was your little advertisement. It is all right.

Col. CRAIGHILL. Of course we are very much obliged to you, gentlemen, for the kind resolution which has been passed, and we have done nothing more than our duty, and if it were necessary we would stay here several days; but we think we have it all now. There is one thing one of my colleagues is desirous of asking, and that is a question that has been omitted thus far.

Col. ROBERT. I just wish to have clearly in my mind one point. I think I understand it, but I would like to know whether there is any person in this room that knows of any case at any one of these three harbors where a vessel—where the anchor has failed to hold, where the tackle was good, and everything, but where the trouble has been, these disasters that have been spoken of—where the trouble has arisen from the lack of good holding ground; where that has been the case; where there is any case on record at any one of the three harbors referred to. If there is, I should like for you to say so right here, and mention the case, so that if there is none mentioned we will understand there has been no case where the disaster was due to the failure of the holding ground.

Mr. WELLS. Is there any gentleman that knows of such a case?

SOMEONE. Mr. Chairman, I believe it is a question, if you will allow me, that nobody can answer, for the reason Santa Monica never had no vessels in that port, if you call it a port, with the exception of small—some schooners—and small schooners that went to anchor there——

Mr. WELLS. The Board will understand and take that into account. The question is, does anyone know of any particular case to refer to the Board?

Maj. RAYMOND. At any one of the points?

Col. CRAIGHILL. The whole area covered by this investigation, Santa Monica Bay and San Pedro Bay, without any reference to any particular locality. Has there ever been known a vessel to drag her anchor and be wrecked? If there is one that anybody can tell us of, we would be glad to know it; and, if it is a matter of record, let us have it in writing. And in this connection, Judge, I would be very glad if you will furnish us a list of those wrecks of which you spoke, with the dates, and the draft of the ships, and their general location in the positions in which the disasters took place.

Mr. CARPENTER. Very well. As soon as possible; I can not do it to-day.

Col. CRAIGHILL. Yes; with thanks again to the gentlemen, the Board will retire and leave the assembly in the hands of the chairman.

ARGUMENT OF THE CHAMBER OF COMMERCE, LOS ANGELES, CAL., IN FAVOR OF DEEP-WATER HARBOR IN THE VICINITY OF LOS ANGELES.

GENTLEMEN: The Los Angeles Chamber of Commerce, in the matter of the proposed deep-water harbor in the vicinity of Los Angeles, Cal., beg leave respectfully to ask your attention to the following reasons why such harbor should be constructed:

First. Between the ports of San Diego and San Francisco there is a coast line of some 500 miles exposed to the full force of the south and west gales of winter, which are onshore winds, without a single harbor of shelter or refuge. A large coast and foreign commerce passes along this unsheltered coast line exposed to its dangers. With the completion of the Nicaragua Canal, and with the constantly-increasing population of southern California, this traffic, both coastwise and foreign, must rapidly increase; and with each year of growth the need of a harbor of refuge for shelter and repairs becomes greater.

Second. While a large population now seeks the sea as its outlet at this point, a vastly increased population must do so in the future. It is estimated that the lands of southern California, which naturally drain to the sea at this point, will support a population of several millions. Back of these, however, lie the large fertile valleys of Arizona. These valleys will support a population of a number of millions. They are already rapidly filling with population. Two outlets, and only two, to the open sea are possible with these people: one westward by the San Gorgonio Pass back of Los Angeles, the other southward by the Gulf of California. The 700 miles of narrow gulf navigation southward, with the calms and tropic heat, are a bar which must force this traffic westward by the shorter and cooler line to the open sea at this point.

Third. The great interior plateau, which stretches from the Sierra to the Rocky Mountains, and which embraces northern Arizona, Utah, and Nevada, and the territories north, finds its natural grade to the sea southward through southern California rather than westward across the Sierra. Before the building of the Central Pacific across the Sierra the traffic of all this region came by wagon trains southward by three natural grades to the sea at the roadstead of San Pedro Bay. The Central Pacific has to cross the Sierra at an elevation of 7,017 feet on its way to San Francisco. The Southern Pacific crosses the same range by the Soledad Pass southward from this interior plateau to Los Angeles at an elevation of only 2,822 feet. The Santa Fé, by the Cajon Pass, at an elevation of only 3,819 feet, and the Southern Pacific crosses the mountains at San Gorgonio, at the extraordinarily low elevation of 2,560 feet, on its way from Los Angeles to deep water at Galveston. It is this law of grades which is forcing the newer roads southward to flank the high mid-Sierra, for that range has its highest crest opposite San Francisco and drops as it comes southward. With the construction of a deep-water harbor in the Bay of San Pedro

or of Santa Monica, and the completion of the Inyo and the Salt Lake roads southward, this whole plateau, because of the easier grade, will again seek to do its shipping southward as it did in the days before the building of the Central Pacific through the port of San Pedro.

Fourth. The completion of the Nicaragua canal will materially help to effect this changing of trade lines to the southern ports, as the traffic from the Atlantic coast and from Europe, which now goes by sail vessels via Cape Horn, and which after rounding the Horn strikes well out to the mid Pacific to catch the trade winds, and then more easily makes the port of San Francisco, will be transferred to propellers via the canal, which will hug the shore on the way north as its shortest line, and will reach the southern ports first. This will give the short sea carriage and the low land grades to the interior of the continent by the southern ports as against the longer sea voyage and the high grades of the northern routes.

Fifth. The Government is now expending large sums of money to make a deep-water harbor at Galveston on the Gulf coast. To make that expenditure productive of its fullest results, it must have its complement upon the Pacific, as this will be the shortest line with the easiest grades from sea to sea over the American territory.

Sixth. San Diego, the only deep-water harbor of Southern California, lies 100 miles south of the present and future population, and the same distance south of the mountain passes which gave outlet to the sea for the interior territories before mentioned. With all the inconvenience and expense incident to lighterage in open roadsteads, the traffic both local and from the interior, as mentioned in this article, is handled here at the proposed sites of the deep-water harbor, rather than go south to San Diego and away from population, capital, and the direct lines of trade.

The chamber would ask your attention to the annexed tables of trade statistics, railroad lines, population, etc.

THE VINEYARD INDUSTRY.

The vineyard industry of the southern counties is fairly shown by the following conservative estimate of the acreage in vines at the beginning of the present season:

Acreage in vines.

	Acres.
Fresno	49,500
Tulare	9,919
Los Angeles	4,695
San Bernardino	3,615
Kern	2,173
Ventura	320
Santa Barbara	270
Total	70,492

The above acreage is set out to wine, raisin, and table grapes, the greater portion being in raisin varieties.

The acreage in table grapes need hardly be taken into consideration, the area to those varieties alone being comparatively small; moreover, a considerable part of the supply of table fruit comes from the raisin vineyards. There are at least 50,000 acres in raisin grapes, and about 19,000 acres in wine grapes; and these figures do not give a true idea of the amount which finds its way to the wineries, as a large proportion of the second crop of the raisin vineyards will be absorbed by the distillers. The output from the above acreage will be increased largely within the next three years, as there is considerable area not yet in full bearing.

Past experience has shown that an amount of 4 tons per acre is a fair estimate for the average yield of wine grapes; on this basis, the above figures of 19,000 acres would give 76,000 tons of wine grapes proper; in addition to this there must be taken into account the second crop from the raisin vineyards, which, at 1 ton per acre, would give 50,000 tons more, or a total of 126,000 tons to be handled in the wineries and there converted into wine and brandy.

As the weight of the cask is reckoned to equal the weight of the refuse (stems, skins, and seeds) in wine making, the above total of 126,000 tons may be taken as a fair estimate of the tonnage of wine and brandy produced from the 70,000 acres, the bulk of which would find its way to a deep-sea harbor, as a natural means of exit on its road to the Eastern States and to Europe.

At the late meeting of inquiry held in Los Angeles, the reporters quoted a prominent wine-maker as saying that "This country has imported during the last two years 280,000,000 gallons of wine." This, of course, was a great error; what he did say was that "France imported this amount of wine, which came from Italy, Algeria,

and Spain." This wine was nearly all sold at public auction, and the prices realized were recorded and published in certain papers devoted to the wine industry; these reports are as correct as the reports of the stock markets at New York or London; the average price realized for this wine was from 30 to 33 cents per gallon. There is no reason for doubting that, if the various matters relating to our wine trade were properly regulated and adjusted to those of France, we could obtain a large proportion of the above-mentioned trade, and if we could obtain an equal price, then all the good grapes grown in the southern country would be worth from $25 to $50 per ton, as they are in France, Italy, and Spain, which would make a handsome return on the capital invested in the business, and would soon turn all the uncultivated and barren-looking hillsides into handsome vineyards, and fill our country with a happy, conservative, and prosperous people.

Fresno County and the adjoining districts have been included in this estimate of the acreage under vines, because we take it for granted that when the Nicaragua or Panama, or possibly both, canals are completed Fresno will ship by the way of our harbor here, rather than by San Francisco, and as undoubtedly Los Angeles would be the center of this trade for southern California, possibly even the produce of Orange and San Diego Counties would also reach this point.

ORE DEPOSITS.

Immense and valuable deposits of magnetic and hematite iron ores are found about 25 miles easterly from Victor on the southerly slope of the Lava Bed range of mountains. One of the most remarkable deposits of magnetic iron ore yet discovered on the continent is found about 20 miles southeasterly from Newberry station, on the Atlantic and Pacific Railroad. The quantity is practically unlimited and the quality unsurpassed, and has been pronounced by expert and practical iron and steel manufacturers of Pennsylvania to be equal to, if not better than, the ore of any mine in the world for the manufacture of steel. The quantity and quality are such as to justify the erection of enormous plants here for the manufacture of iron and steel as soon as cheap fuel can be obtained.

I am informed by one of the leading iron and steel manufacturers of Reading, Pa., that a very large business could be done in shipping this ore to Reading and Pittsburg if we had a good harbor, where a large amount of tonnage could be secured. He stated in explanation that there was very little first-class iron ore suitable for the manufacture of steel to be had now in Pennsylvania, and that the manufacturers there were getting it from all parts of the world where ships could obtain first-class ore for freight or ballast.

There is enough salt in southern California to supply this continent for all time if transportation for it could be had. There is a mountain of it near Resting Springs, in San Bernardino County, where it can be quarried like rock, and a few miles south of Cadiz, on the Atlantic and Pacific Railroad, there is a deposit covering more than 250 acres, and of unknown depth, from which pieces of pure crystals of salt can be obtained that are several inches in thickness and so clear and transparent that a newspaper could be read through them. There is also immense quantities of it to be had at Salton, on the Southern Pacific Railroad.

Valuable copper mines are found in the near vicinity of the iron mines mentioned above. Many valuable gold mines are found in San Jacinto Mountains, near Perris, also on the northerly slope of the San Bernardino Mountains, and many valuable silver-lead mines are found in southern California. Sand, suitable for the manufacture of the better grades of glass, is found in large quantities in Los Angeles County. The deposits are heavy and the quality as good as any ever discovered elsewhere. Some of the finest deposits of bituminous lime rock known are found in southern California. In Ventura County are found some of the largest asphaltum mines on the continent. Deposits of graphite, sulphur, manganese, gypsum, asbestos, soda, niter, and, in short, almost every mineral substance found in nature occurs in southern California.

Of fine building stone we have almost an infinite variety. In Ventura County we find deposits of red and brown sandstone in unlimited quantities. In one place the exposure shows a thickness of about 2,000 feet. Enormous quantities of this beautiful stone have already been quarried and shipped for building purposes. Experts report it to be equal to any brown sandstone in the United States. In Los Angeles County, near Lordsburg, on the Santa Fé Railroad, is a large deposit of brown sandstone that is extensively used for building purposes.

There are many marble quarries furnishing a superior quality of marble for building and other purposes, also many granite quarries furnishing a superior quality of granite for all uses. In fact, southern California is as well supplied with choice building stone as any section of the United States.

INCREASE IN ASSESSED VALUATION OF LANDS.

Increase in Los Angeles, Santa Barbara, San Bernardino, and Fresno counties from 1882 to 1892.

Counties.	1882.	1892.	Increase.
Los Angeles	$20,916,835	$82,860,322	$61,943,487
Santa Barbara	5,076,643	16,679,900	11,603,259
San Bernardino	3,925,343	25,647,315	21,172,972
Fresno	7,071,198	40,919,010	33,847,812
Total			128,567,530

Increase in San Luis Obispo, Kern, Tulare, and Ventura counties from 1885 to 1891.

Counties.	1885.	1891.	Increase.
San Luis Obispo	$9,719,154	$14,090,675	$4,371,521
Kern	8,587,400	12,870,691	4,283,291
Tulare	11,983,925	24,467,407	12,483,482
Ventura	4,574,208	7,861,975	3,287,767
Total			24,426,061

Increase in Orange County from 1889 to 1892.

Counties.	1889.	1892.	Increase.
Orange	$8,646,024	$9,458,528	$812,504

INCREASE IN ASSESSED VALUATION OF IMPROVEMENTS.

Increase in Los Angeles, Santa Barbara, and San Bernardino counties from 1882 to 1892.

Counties.	1882.	1892.	Increase.
Los Angeles	$3,779,276	$15,834,390	$12,055,114
Santa Barbara	943,580	2,342,285	1,398,705
San Bernardino	711,111	5,181,430	4,470,319
Total			17,924,138

Increase in San Luis Obispo, Tulare, and Ventura counties from 1885 to 1891.

Counties.	1885.	1891.	Increase.
San Luis Obispo	$1,147,146	$1,539,110	$391,964
Tulare	244,258	2,319,480	2,075,222
Ventura	473,322	816,599	343,277
Total			2,810,463

Acreage of grain, vines, and fruit trees.

Acreage sown to grain for 1892 in Los Angeles, Santa Barbara, Orange, San Bernardino, Kern, and San Luis Obispo counties	acres..	598,220
Acreage in vines, 1892, in Los Angeles, Ventura, Santa Barbara, Orange, San Bernardino, Kern, Fresno, and San Luis Obispo counties	...acres..	68,339
Number of bearing fruit trees in Los Angeles, Ventura, Santa Barbara, Orange, San Bernardino, Tulare, Kern, Fresno, and San Luis Obispo counties		4,571,516

Value of products, 1891.

	Quantity.	Value.
Los Angeles and Orange counties:		
Wheat.....cwt..	486,000	$2,122,300
Barley.....do...	1,216,890	
Corn.....do...	200,000	
San Bernardino and northern San Diego counties:		
Wheat and barley.....do...	750,000	1,000,000
Ventura and southern Santa Barbara counties:		
Wheat and barley.....do...	500,000	600,000
Corn.....sacks..	100,000	150,000
Beans.....pounds..	37,732,154	.....

MANUFACTURES.

In the line of manufactures southern California is somewhat backward. The utilization of our many valuable natural products has not received the attention which it deserves. This has been largely due to the cost of fuel, labor, and transportation and the high rates paid for money. But these obstacles are rapidly being removed.

While this is not a manufacturing section as generally understood, there are many manufacturing establishments in southern California, and their number is being continually increased. Among the most important articles that are made here may be mentioned iron castings, iron and cement pipe, machinery, brick, canned and dried fruit, boxes, flour, crackers, soap, doors and sashes, mineral water, beer, wine and brandy, furniture, candy, pickles, ice, and sugar.

Several potato starch factories have been established during the past year near Los Angeles.

Within the city limits of Los Angeles are hundreds of thousands of tons of fine glass sand from which, at an experimental test, excellent glass has been made. Fifty thousand dollars would liberally equip such a factory, yet we import all our glass from the East.

Immense quantities of raw hides are shipped East and reimported as shoes, saddles, and harness. There is only one small tannery in this section. We should prepare here calfskins and kipskins, also sole and harness leather. The expense for tallow and neat's-foot oil in the manufacture would be less than in the East. There is some tan bark oak here and large quantities in Lower California. The extract can also be imported from Pennsylvania and West Virginia forests, where it is prepared. A shrub also grows from which a good substitute for tan bark is made.

A little ordinary wrapping paper only is made here. There is good opening for one or more paper mills to make manila and other papers. A vast quantity of paper cuttings are destroyed, also large quantities of rags, while hemp can be grown here profitably. Fine tissue paper, for wrapping fruit, should be made, and fine wrapping paper from flax. There are a couple of small potteries, but most of our milk and butter crocks, jam jars, fruit jars, and flower pots are still imported, in spite of the fact that we have deposits of excellent clay here. There are extensive deposits of mineral paint in several places, which might be profitably worked up. From the residue of petroleum, which is produced abundantly here, might be manufactured a great variety of products, such as coal-tar colors, lubricating oils (made now on a small scale), waterproofing, printing ink (which is now manufactured in Ventura County), vaseline, benzine, and naphtha, and washes for insect pests; also fuel gas, which is largely made from petroleum in the East.

Parties are about to erect in this city smelting and refining works, under the name of the Southern California Smelting and Refining Company. The company is organized under the laws of the State of Minnesota, being composed principally of gentlemen residing in that State, associated with other gentlemen residing in the State of New York. It is intended to arrange for a power of 200-ton per day plant, but the first furnace will be of 60 tons capacity daily. It will be followed by others of 60 or 40 tons each, as business requires, until the full complement of 200 tons capacity daily is reached. The city council promptly granted the right, for twenty-five years, to tunnel under the river bed for water, should it be found necessary to do so. The works are to be erected on the lands immediately south of the track of the Terminal Railway, where that road curves to the east, just north of the patent boundary line, on the southern limits of the city. These works will give employment to a number of men and will doubtless also be the means of giving employment to many more in mines of low-grade ore in this vicinity, now idle. It is confidently believed that it will be successful beyond the expectation of its projectors, and be the harbinger of that era of manufacturing which we believe this city will attain in the not far distant future.

THE BEET-SUGAR INDUSTRY.

The manufacture of sugar from beets in southern California is still in its infancy, but the results of the initial factory at Chino, San Bernardino County, have been of such an encouraging nature that one new factory at Anahein, Orange County, will be constructed at once, and preliminary steps have been taken for the construction of others in southern California. At Chino about 3,000 acres were planted to sugar beets in 1891, and some 5,000 acres in 1892. The yield per acre has been about 15 tons, as against 12 tons, the average of European yield. The total output of sugar from beet-sugar factories in the United States during 1891 was 6,000 tons, of which nearly one-third was produced by the Chino factory. It is estimated that 700 factories the size of the plant at Chino would be required, working to their full capacity, to supply the demand for sugar in the United States.

Southern California is especially adapted to the production of the sugar beet on account of its peculiar climate, the beet requiring not so much a high temperature as a high average temperature, and this it secures through the long and dry summer weather prevalent here. The sugar beet is not a gross feeder, chemical analysis showing that it absorbs only the slightest traces from the soil, the sugar being developed in the form of carbohydrate from the sun and air through the leaves. An alkali soil, of which southern California has many thousand acres, has been found peculiary adapted to the sugar beet.

It is estimated by a competent authority that there are fully 50,000 acres of land in the six counties of southern California lying south of the Tehachepi Range which will produce sugar beets better than anything else, and at a very small cost. This quantity of land, using the actual results at Chino as a basis, will produce 300,000 tons of prime sugar, being one-fifth of the total consumption of the United States. These lands range from dry semimesa soils to semimoist lands, now barren or used as sheep pastures, yielding little for export and requiring nothing in the form of imports. Under the stimulus of the success already achieved in the direction of beet-sugar manufacture, the quick hand of American genius and enterprise will in a short time transform these barren fields into beet plantations, and not only granulate the sugar for market, but increase the freight bulk an hundredfold by canning and crystallizing thousands of tons of fruits with the product of the sugar mill.

SAN PEDRO SHIPPING.

Some interesting statistics have been compiled of the shipping business at San Pedro from the records of the custom-house and railroads. The compilation extends over a period from the establishment of the Wilmington customs district, November 11, 1882, to June 30, 1892.

During the period mentioned, over nine and one-half years, the amount of duties collected was $694,670.62; the tonnage, $36,753.87; total, $731,424.49.

The number of vessels which arrived at San Pedro from January 1, 1887, to June 30, 1892, was as follows:

1887	887
1888	1,093
1889	588
1890	492
1891	585
1892 (to June 30)	307

Of these 283 were foreign vessels.

During the period from January 1, 1884, to June 30, 1892, there were received in imports at San Pedro—

Bituminous coal	tons	757,633
Lumber	feet	702,634,190
General merchandise	tons	235,033

In 1888 and 1891 there were received 28,402 casks of cement.

During the years 1885 to 1891, inclusive, there were, of foreign exports, 16,076 tons of wheat. Of domestic exports, embracing a large number of articles, there were shipped in—

	Tons.
1890	15,289
1891	16,963
1892 (up to June 30)	3,841

AREA AND POPULATION.

That portion of this State which is included under the distinctive appellation of southern California comprises the counties of Los Angeles, Orange, San Bernardino, San Diego, Ventura, and Santa Barbara, and has a total area of about 45,000 square miles. The population of these southern counties by the census of 1880 was 64,371, and by the census of 1890 was 201,352, being exactly one-sixth of the population of the entire State. The States of Connecticut, Delaware, Massachusetts, New Hampshire, New Jersey, Rhode Island, and Vermont could all be placed within the boundaries of southern California and still leave 1,454 square miles to spare.

OIL AND ASPHALTUM.

The development of the oil industry dates back some twenty-five years, oil at that time being a high-priced article in any form, and promising great profit in its production to the promoters, who then, or a little later, included Senator Stanford, Thomas A. Scott and associates of the Pennsylvania Railroad, Senator Felton, Floyd Tevis, and others. The districts of Ventura County, Pico Cañon, and Puente, in Los Angeles County, are now permanently producing fields and the prominent ones in California.

A fair estimate of the production for the year 1891 is 350,000 barrels, valued at $700,000, and the value of the entire production since its inception no doubt reaches $10,000,000. The development of both old and new fields goes on, and production is increasing. The value of crude oil as fuel is apparent in the city of Los Angeles and neighboring towns, though the recent wonderful exhibit by the Union Oil Company of refined oil and products of petroleum, vaseline, anilines, printing inks, and varnishes at your Los Angeles County fair, point to the future greater value of the industry from advance in that direction than from the fuel-petroleum business.

The oils found a large market originally at San Francisco, and the proximity of wells to the sea with pipe lines and oil steamers were an important factor in establishing the lower freight charges by rail, which now exist, and have, in turn, stimulated the production and made it profitable. The sea still exists as a potent regulator of the rates. Notwithstanding the excessive use of oil for fuel, its economy commending it, and its price having been held steadily and uniformly at one figure for years, large quantities of coal, as may be seen by port statistics, are still imported, and the price kept at its ordinary standard by oil as a regulator, both together acting as an inducement and stimulus to manufacturing industries, now representing a large production and giving employment to labor, which industries would not exist but for the oil production.

The improvement of the harbors of southern California would no doubt affect favorably the production, consumption, and cheapness of crude petroleum and its refinery products. The probable demand in the years to come beyond the supply induced, as may be remembered, a company in Los Angeles, of which the writer was a member, to look to other and foreign oil-producing territories for such supply, and the entry upon negotiations to that end, including the building of bulk ships for transportation of the oil, one serious obstacle presented itself in the shallow depth of available harbor, or the access to them or docks, for heavy-draft bulk oil vessels.

ASPHALT.

The asphalt industry is younger, but each year California's prominence becomes greater as practically the only State whose supply may become a competitor in the United States with the foreign article, now reaching our shores in amounts of over 100,000 tons per annum, for paving, roofing, paints, varnish, electric insulation, pipe coating, the lining of dams, reservoirs, and irrigation canals, etc.

Asphalt proper takes three forms in its production, and in which shipments now find their way to the eastern or foreign markets—first, as a refinery product and residuum of California, petroleum standing alone practically in respect to its origin, character, and quality for the coating of iron pipe for water conduits and irrigation, the manufacture of paint, printing ink, and other kindred uses. Second, as semiliquid asphaltum or naphtha, used as a flux for the harder asphalts, or reduced to fine grades of varnish asphalt. Third, found as a hard deposit in combination with and having saturated the clay, limestone, gravels, and vegetable matter, and refined by simply heating and melting which deposits and separates the dross existing and leaving an article found equal to any for paving and other purposes. The deposits, experts have declared, reach tens of thousands of tons in the counties of San Luis Obispo and Kern south. Several thousand tons were shipped last season by sea and rail, and the present amount would be largely increased by cheaper transportation to eastern and foreign ports.

Bituminous rock, sometimes classified with asphalt, is chiefly mined in San Luis Obispo and Monterey counties, but much used in southern California, and finds its way to our cities by sea and the connecting rail lines. Whatever cheapening of transportation or handling would be effected by harbor improvement would likewise affect favorably bituminous rock and its use for the pavement of cities in mild climates.

RAILROADS.

There are now constructed and in operation in southern California more than 1,400 miles of railway. In 1882 there were less than 700 miles. In 1876 the first mile was constructed.

The east and west traffic of North America has only three outlets on the Pacific coast. One on the Puget Sound country, one at the Golden Gate, and the third by Santa Monica, San Pedro, or San Diego. The lowest mountain passes for the use of transcontinental railway lines front directly on southern California, the elevations being from 4,000 to 5,000 feet less than by way of the northern routes.

The next great transcontinental line to the Pacific coast will be constructed from Salt Lake City to Los Angeles, and prominent capitalists are now interesting themselves in arranging details for the consummation of this project. The completion of this line will throw southern California into close connection with some of the largest and finest coal and iron-ore deposits in the United States, and will make the city of Los Angeles and the proposed deep-water harbor the natural outlet for thousands of tons of this valuable product.

The Southern Pacific Company's main line, from San Francisco to New Orleans and the East, extends through southern California 369 miles; 120 miles from Tehachipi to Los Angeles, and 249 miles from Los Angeles to Yuma. St. Saugus is a branch, extending through Ventura and Santa Barbara counties to Elwood, 92 miles, where there only remains a small gap to be filled to complete the coast line to San Francisco, work which will probably be accomplished within a year. There are short lines of the Southern Pacific Company from Los Angeles to Santa Monica Cañon, 22 miles; to San Pedro, 22 miles; with branch to Long Beach, 4 miles; to Santa Ana, 32 miles; with branches to Tustin, 11, and Whittier, 6. Total length of Southern Pacific lines in southern California, 475 miles, divided among the counties as follows: Santa Barbara, 27 miles; Ventura, 50; San Bernardino, 48; San Diego, 156; Los Angeles, 170; Orange, 24.

The Santa Fé system is here known as the Southern California Railway. It connects with the Atlantic and Pacific at Barstow, in San Bernardino County, whence a branch runs to Mojave, on the Southern Pacific, north of Los Angeles.

From Mojave to Needles, on the Colorado River, is 241 miles; Barstow to National City, 210 miles; Los Angeles to San Bernardino, 60 miles; East Riverside to Orange, 40 miles; Los Angeles to Junction, near Oceanside, 83 miles. There are short branches from Perris to San Jacinto, 19 miles; San Bernardino to Mentone and back, known as the small loop of the "kite-shaped track," 25 miles; Escondido branch, 22; Los Angeles to Redondo, 22; Ballona branch, 15. Total length of the Southern California Company's system in Southern California, 746 miles. The Santa Fé has just completed a branch from Inglewood, on the Redondo line, to Santa Monica.

The Los Angeles Terminal Railway Company, which was incorporated in Los Angeles a year ago, with a capital stock of $3,000,000, several of the stockholders being St. Louis capitalists, is intended as the terminus of some transcontinental railway not yet built. Overtures have recently been made to the representatives of eastern roads. The company has acquired the Los Angeles, Pasadena and Glendale line, has built a line to Long Beach and San Pedro, and has acquired excellent wharf facilities by the purchase of Rattlesnake Island, at the latter place. The total engtth of the company's lines is about 65 miles.

THE ADVANTAGES OF A DEEP-WATER HARBOR AT LOS ANGELES.

The port of Los Angeles lies forty-eight hours nearer to Sydney, Melbourne, Adelaide, and Brisbane by direct steamer, and forty hours nearer via Honolulu than San Francisco. It is forty-eight to fifty-four hours nearer Colombo, in the Island of Ceylon, whence large cargoes of tea are exported to Australia and England. Just at present all our teas are imported from Japan and China, but should a diversion in favor of Ceylon ever take place the saving in interest upon ordinary cargoes of tea would amount to $2,500 to $3,200 per diem, making a saving of $5,000 at least in favor of the Los Angeles route on any ordinary cargo. Nor is this all. The Santa Fé and Southern Pacific routes, both starting out of Los Angeles, are at certain times in winter the only roads open to the East, owing to detention by snow in the high sierras on the Central and in the Cascade Mountains on the Northern and Union Pacific roads.

The trade of Australia should seek this port also more naturally than that of San

Francisco, as the port of Los Angeles is at least forty hours nearer Australian ports than San Francisco, so long as vessels coming this way are obliged to call at Auckland, Samoa, and Honolulu for the mails.

The imports of Australian wool, so valuable in the manufacture of carpets and the higher grades of blankets and rugs, have fallen off greatly since the McKinley tariff went into effect, but with a moderate tariff, such as prevailed before the civil war, there would be business enough for a semimonthly line of steamers; and even then much larger vessels than are now employed in the traffic would carry full cargoes of this staple for eight months in the year. As most of this staple is carried across the continent by rail, the advantages of a port whose communications are never affected by snow become the more apparent as the case is subjected to intelligent scrutiny.

To the board of Government engineers appointed to investigate with regard to the construction of a deep-water harbor in the bays of San Pedro or Santa Monica.

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2. LETTER FROM R. H. THOMPSON, VICE-PRESIDENT REDONDO BEACH COMPANY.

REDONDO BEACH, CAL., *September 5, 1892.*

GENTLEMEN: In pursuance of the duty delegated you by the last Congress, you have visited what is known as the "port of Los Angeles," with its harbors of San Pedro and Redondo, the latter being the latest established, for the purpose of making a careful and critical examination for a proposed deep-water harbor at San Pedro or Santa Monica Bay, and to report as to which is the more eligible location for such harbor in depth, width, and capacity to accommodate the largest ocean-going vessels and the commercial and naval necessities of the country.

With that statement, gentlemen, I beg to submit for your consideration a few remarks as to the eligibility of Redondo roadstead for a deep-water harbor, such as is contemplated by the act of Congress.

The old port of San Pedro, upon which so much money has been spent and for which so much additional is now demanded, was the pioneer harbor of this portion of California, doing all the business of Los Angeles and vicinity up to the opening out of the Santa Monica wharf and warehouse by John P. Jones, of Nevada, and his associates, in 1875. This wharf was subsequently torn down and commerce again sought the only then available port of San Pedro.

It was in the winter of 1886–'87 that the American people suddenly became aware of the fact that Uncle Sam had a new Italy within his very domain; that its climate was as mild as that of the Riviera, and its air a mixture of ozone and the perfume of orange-blossoms, and that, owing to the recent completion of the Santa Fé Railway and the cut rate between two rival railway companies, could be reached at a less rate of fare that had till then been paid for a winter trip to the Everglades of Florida.

Out of that low rate of fare grew the southern California boom, which, however, literally collapsed in 1889. It was at this time that two gentlemen, who had been the founders of the Oregon Steam Navigation Company, doing business on the Columbia, Snake, and Willamette rivers, visited southern California, and were offered their present buildings at Redondo Beach, where a magnificent watering place had been projected by local capitalists. While they were hesitating about accepting the property they visited San Pedro and other points, and at once saw that, while business was unusually depressed all thoughout the southern portion of the State, still, the little port of San Pedro was already overtaxed both for wharf room, side track, and anchorage capacity; moreover, only third-class vessels could go to the wharf with all their cargo, on account of the shallow and tortuous channel, this necessitating the lighterage from all larger vessels in the trade, thereby creating two extra handlings of all freight by the larger ships and risking the chances of that much additional breakage and expense.

It was evident to the practiced eyes of these gentlemen that there must soon be another sea-port town not far away, and now the question was, Should that town be located at Santa Monica or at the town site that had been offered for sale to them? Certainly, the destruction of the great wharf and warehouse, at Santa Monica, erected by Senator Jones only twelve years prior to their visit hither, would not indicate much that was permanent at Santa Monica.

They accordingly had soundings made in front of the present site of Redondo, and finding their examinations to tally thoroughly with all the Government plats, they purchased this property, erected a wharf, and got ready for business, having faith in the commercial adaptability of the Redondo frontage.

For some time the steamers of the Pacific Coast Steamship Company declined to land at Redondo, but finding it much to their advantage to get right up to a good

and safe wharf, alongside of the cars, instead of being compelled to lighter as at San Pedro, consented to land their vessels at Redondo, and now it is their favorite port.

Capt. Alexander, of the *Santa Rosa*, one of the largest vessels on the coast, will cheerfully testify, I think, that there is no port south of San Francisco at which he can land his ship more safely, unload cargo as rapidly, as at Redondo, and with as little breakage to his cargo or damaage to his vessel while lying at the dock. With Capt. Hall, of the *Corona*, the next in size to the *Santa Rosa*, I have had no conversation on this subject, but believing him to be a truthful and fair-minded man, am willing to trust it to him, as also to the masters of other steamers and vessels of less magnitude.

The following shows the various amounts of freight landed at Redondo by the various steamers during the past three years:

Year.	No. of steamers.	Total tonnage.	Monthly tonnage.
1889 (from the opening of the wharf in June until Dec. 31)	83	8,261	1,180
1890	182	26,836	2,236
1891	194	29,187	2,432
1892 (to Aug. 31, eight months)	192	26,098	2,512
Aggregate	651	84,382	8,360

Or 130 tons per steamer.

LUMBER VESSELS.

Year.	No. of vessels.	Cargo.
		Feet.
1889 (from June to Dec 31)	18	6,000,000
1890	29	10,000,000
1891	61	21,000,000
1892 (to Aug. 31, eight months)	39	14,000,000
Total	147	50,000,000

Or 340,000 feet per vessel.

In addition to the steamers and sailing craft mentioned, a few months ago the British ship *Kircudbrightshire*, one of the largest sailing vessels of deep draft, arrived direct from Antwerp and discharged her cargo of 1,700 tons alongside of the wharf and into the cars, with ease and safety, in the remarkable short working time of seventy-three hours. There has also arrived from New York within the past month at Redondo, the *Progreso*, the pioneer steamer of the Atlantic and Pacific Steamship Company line, discharging 1,000 tons of assorted merchandise direct on the wharf and into the cars with perfect satisfaction. All the above tending to show the approval of the owners of vessels and the merchants of southern California of Redondo as a safe and ample port for the largest and deepest-draft vessels, as is evidenced by the fact that another steamer of this line is now about due from New York, and two ships of the largest class are now arranging to sail for Redondo, one from New York and the other from Antwerp.

These figures show the growth and expansion of Redondo's trade as the most important port of the city of Los Angeles, in the period of 3 years, and there is no boom about this; nothing but the gradual growth of the trade in proportion to the advancement of its tributary country. Within these 3 years the traffic of Los Angeles and vicinity, via Redondo, has grown from nothing to fully 60 per cent of the whole, and this too has been accomplished without encouragement from the Federal Government or the subsidizing of any connecting railway; indeed, the projectors, far from subsidizing any railroad, were reluctantly compelled to build a railroad of their own, in order to secure to the rapidly-growing settlements inland ample facilities between Rendondo and the southern metropolis.

Now, having spoken at great length upon the growth and development of the enterprise, whose local representative I have the honor to be, I shall before closing direct the attention of your honorable body to the physical geography of that portion of Santa Monica Bay lying and being directly in front of Redondo.

The map which I submit for your inspection is a copy of one emanating from the office of William Ham. Hall, State engineer of California, with accompanying report of Col. G. H. Mendell, of your own corps, and to which I ask your special attention. By reference to it you will see that in the whole of Santa Monica and San Pedro

bays there is nothing to parallel the deep-water channel which lies directly in front of the town site of Redondo. It seems to be a deep submarine cañon with its apex immediately in front of the center of the tract and widening very slowly for the first 2 miles as you move off shore. There is 60 feet of water at the distance of less than one-eighth of a mile from shore, 120 feet at less than one-fourth of a mile and 180 feet at less than one-half a mile; add to this the fact that a submarine oil well about 2 miles from shore constantly emits large quantities of petroleum which has a tendency to smooth the surface of the water, and you will readily recognize the handiwork of nature in the creation of this superb roadstead, which can be made a perfect artificial harbor at a nominal cost as compared with that required at any available port in the immediate vicinity.

It will be understood that although Santa Monica lies under the lee of the north head of this bay, laid down on the map as Point Dume, it has a rougher sea than prevails at Redondo all through the period of the northwest trade winds, which usually last from April to November. It is the deep submarine cañon in front of Redondo that makes this distinction. With a uniform depth of water all the way across the bay Redondo would naturally have the rougher sea of the two; as it is, however, the deep submarine gorge has a marked tendency to quiet the wave motion, and as for the undertow or ground swell, it is imperceptible. This can not be said of any other open roadstead on the coast. Redondo, it is true, is an open roadstead, it is, however, well sheltered and protected from the occasional southeast gales by the highland or Palos Verdes hills on the south and running out into the ocean some 2 miles, terminating in what is known as Cape St. Vincente, or Rocky Point. Now, taking the southeast weather, which begins, generally speaking, early in the year and continues until April, the sweep of the sea from the south first strikes Catalina Island and then expends the remainder of its force upon Cape St. Vincent, the projection known as Rocky Point, while Santa Monica, lying at least 12 miles further to the north is decidedly at its mercy on account of the sea having so much longer sweep at it.

The company which I represent makes no request beyond that of a critical and searching examination, taking it as granted that the engineering skill and high professional pride which has elevated you to your positions in the corps to which you belong will enable you to judge this place upon its actual merits and to render a report in accordance with your convictions. If this matter of harbor improvement were only for the present and did not contemplate the future condition of maritime commerce, and at a period when we shall have passed away and our heirs be left to complete what we have begun, much that I have said here might have been left unsaid; but as Los Angeles is to-day one of the largest railway centers on the Pacific coast, and her communications by rail are daily expanding, as that expansion contemplates the direct trade with Australia, China, and Japan in the near future, necessarily employing only the largest steam vessels having great draft of water in order to secure the highest power and assure the maximum speed, and as it has now become an axiom of commerce that the ship and the railway car must be brought together in order to secure the least possible expense to the shipper, we are content to leave this matter to your consideration in the full belief that you will give it your ripest judgment and your most impartial decree.

The extension of our present wharf to accommodate increased business, or the construction of additional wharf facilities, is simply a matter of expediency and can be built with dispatch, owing to the short distance to very deep water. The configuration of the deep channel, admits of several wharves being built directly alongside of the deepest water, and I venture the suggestion that Redondo roadstead with a floating breakwater at proper distance seaward, to break the force of the wind and wave, in our judgment will furnish to southern California a deep, safe, commodious, and ample harbor, where vessels of the largest carrying capacity and deepest draft can discharge and receive cargo in the shortest time. We have been doing business over the Redondo wharf daily for a period of three years with little or no interruption on account of weather, and I am free to say that there is no time during 360 out of 365 days of the year when any steamer can not approach and land at the wharf with perfect safety. There are times, however, when the westerly winds create more or less swell, necessitating greater care and precautionary measures being taken in landing than ordinary. A somewhat temporary or floating breakwater, such as I understand has been constructed in various parts of the world, would, I imagine, be sufficient to fill all requirements.

The question of deep water, tide, currents, anchorage, etc., being one that the representative engineers must determine to their own satisfaction, and presuming that their conclusions will be the same as that of Col. Mendell and William Ham. Hall, I beg leave to call your attention briefly to another very important factor that will enter into the question of the selection of a harbor or port for an interior city, viz, accessibility, and in this connection will say, that—First, the lay of the land adjoining the town site of Redondo and the land within the town site itself is such

that railroads can approach the harbor on easy grades and without having to overcome natural difficulties or make costly approaches to the wharves. Second, the land slopes back gently from the sea, making a beautiful town site, and extending back into the interior for miles, opening up a vast agricultural section of rich productive land directly accessible to the seaport without being subject to a railroad charge, as the contour of the country is such that everything can be transported by first hands to the point of delivery. I submit in conclusion, gentlemen, that Redondo is the natural seaport of Los Angeles and vicinity, made so by nature, and every point in connection therewith will bear the closest examination and scrutiny.

If the honorable [Board] of Engineers find the preponderance of advantages in favor of Redondo sufficient to warrant recommendation for the expenditure of public money at this port, the interests which I represent will meet every business proposition in a business way, so that the greatest possible advantage will be gained by the city of Los Angeles and the State at large, and that no personal, narrow minded or selfish policy will shut out any legitimate operation from reaping a full share of any money expended by the people's representatives for the benefit of the people.

Certain it is that in a matter involving so much expenditure of the public money, nothing must be done that will have to be done over again, and in submitting to your consideration the merits of Redondo we do so in the belief that it will be found the cheapest as well as the safest, and the only point fulfilling the letter and the spirit of the act of Congress which has been presented to you for official inspection.

Respectfully submitted.

R. H. THOMPSON,
Vice-President.

Statement of tonnage received and delivered to vessels over the Redondo wharf.

1889.		Pounds.	
June 6.	Steamer Santa Maria	343,590	
12.	Steamer Alex. Duncan	11,900	
22.	Steamer Bonita	4,010	
30.	Steamer Los Angeles	21,370	
			380,870
July 8.	Steamer Los Angeles	37,120	
12.	Steamer Eureka	43,440	
16.	Steamer Los Angeles	5,310	
28.	Steamer Protection	334,009	
26.	Steamer Eureka	8,320	
			428,199
Aug. 1.	Steamer Los Angeles	87,790	
4.	Steamer Eureka	134,960	
8.	Steamer Los Angeles	68,545	
10.	Steamer Protection	319,970	
12.	Steamer Eureka	52,130	
15.	Steamer Santa Cruz	480	
16.	Steamer Los Angeles	76,210	
18.	Steamer Protection	239,745	
20.	Steamer Santa Maria	76,490	
20.	Steamer Eureka	138,650	
24.	Steamer Los Angeles	93,510	
28.	Steamer Eureka	274,920	
30.	Steamer Santa Maria	75,715	
30.	Steamer Santa Cruz	170,910	
			1,810,025
Sept. 2.	Steamer Los Angeles	221,170	
3.	Steamer Bonita	273,950	
6.	Steamer Eureka	160,740	
10.	Steamer Los Angeles	165,410	
13.	Schooner Edward Park	62,820	
14.	Steamer Eureka	296,370	
15.	Steamer Bonita	8,250	
18.	Steamer Los Angeles	163,560	
20.	Steamer Santa Maria	51,119	
22.	Steamer Eureka	112,174	
26.	Schooner John G. North	266,330	
26.	Steamer Los Angeles	134,700	
30.	Steamer Eureka	68,440	
			2,222,09

Statement of tonnage received and delivered to vessels over the Redondo wharf—Cont'd.

1889.			Pounds.	
Oct.	1.	Steamer Santa Maria	129,679	
	4.	Steamer Los Angeles	87,900	
	8.	Steamer Santa Cruz	227,840	
	9.	Steamer Eureka	108,900	
	11.	Steamer Santa Maria	178,140	
	12.	Steamer Duncan	212,660	
	12.	Steamer Los Angeles	155,070	
	15.	Steamer Bonita	40,000	
	16.	Steamer Eureka	142,540	
	18.	Steamer Santa Cruz	48,000	
	19.	Schooner Eclipse	72,000	
	20.	Steamer Los Angeles	130,000	
	24.	Steamer Santa Maria	450,292	
	24.	Steamer Eureka	249,630	
	26.	Steamer Bonita	63,869	
	30.	Steamer Yaquina	133,180	
				2,429,700
Nov.	2.	Steamer Eureka	135,730	
	2.	Steamer Santa Maria	201,747	
	5.	Schooner Bertha Dolbeer	100,000	
	6.	Steamer Yaquina	254,410	
	10.	Steamer Eureka	482,065	
	10.	Steamer Santa Maria	479,219	
	13.	Steamer Yaquina	404,480	
	18.	Steamer Eureka	462,580	
	18.	Steamer Santa Maria	331,412	
	18.	Steamer Santa Cruz	161,010	
	22.	Steamer Los Angeles	476,260	
	25.	Steamer Bonita	385,000	
	25.	Steamer Eureka	228,400	
	25.	Steamer Santa Maria	315,666	
	28.	Steamer Los Angeles	294,480	
				4,720,449
Dec.	3.	Steamer Yaquina	230,160	
	4.	Steamer Santa Cruz	73,513	
	4.	Steamer Bonita	171,700	
	6.	Steamer Santa Maria	295,928	
	7.	Steamer Los Angeles	292,665	
	14.	Steamer Santa Maria	654,465	
	14.	Steamer Santa Cruz	1,055,020	
	15.	Steamer Los Angeles	214,550	
	19.	Steamer Yaquina	280,420	
	20.	Steamer Duncan	393,950	
	21.	Steamer Bonita	40,476	
	23.	Steamer Los Angeles	217,850	
	24.	Steamer Santa Maria	221,295	
	24.	Steamer Santa Cruz	239,576	
	28.	Steamer Eureka	111,930	
	29.	Steamer Bonita	36,450	
				4,529,948
1890.				
Jan.	1.	Steamer Los Angeles	148,820	
	4.	Steamer Eureka	91,596	
	7.	Steamer Santa Maria	360,460	
	8.	Steamer Los Angeles	168,410	
	12.	Steamer Santa Cruz	289,160	
	12.	Steamer Eureka	248,990	
	15.	Steamer Bonita	120,890	
	16.	Steamer Los Angeles	513,850	
	18.	Steamer Santa Maria	202,950	
	20.	Steamer Eureka	297,430	
	22.	Steamer Bonita	3,540	
	24.	Steamer Los Angeles	504,630	
	28.	Steamer Eureka	565,100	
	28.	Steamer Santa Cruz	309,170	
				3,824,996

Statement of tonnage received and delivered to vessels over the Redondo wharf—Cont'd.

1890.			Pounds.	
Feb.	1.	Steamer Santa Maria	498,897	
	1.	Steamer Los Angeles	186,420	
	2.	Steamer Bonita	78,360	
	5.	Steamer Eureka	399,815	
	9.	Steamer Los Angeles	199,010	
	12.	Steamer Santa Maria	271,390	
	13.	Steamer Eureka	311,100	
	13.	Steamer Bonita	21,242	
	17.	Steamer Los Angeles	316,410	
	21.	Steamer Eureka	267,430	
	23.	Steamer Santa Maria	616,630	
	25.	Steamer Los Angeles	76,200	
				3,242,904
Mar.	1.	Steamer Eureka	299,350	
	1.	Steamer Newport	59,820	
	5.	Steamer Los Angeles	228,110	
	6.	Steamer Bonita	4,170	
	9.	Steamer Santa Maria	297,850	
	10.	Steamer Eureka	178,630	
	11.	Steamer Bonita	85,960	
	13.	Steamer Los Angeles	291,080	
	13.	Steamer Alex. Duncan	294,830	
	17.	Steamer Eureka	261,720	
	21.	Steamer Bonita	190,598	
	21.	Steamer Santa Maria	228,030	
	21.	Steamer Los Angeles	204,970	
	25.	Steamer Eureka	308,050	
	29.	Steamer Los Angeles	207,200	
				3,140,368
Apr.	1.	Steamer Santa Maria	45,940	
	2.	Steamer Eureka	129,050	
	3.	Steamer Bonita	369,080	
	5.	Steamer Santa Cruz	160,650	
	6.	Steamer Los Angeles	169,550	
	9.	Steamer Bonita	201,960	
	9.	Steamer Bonita (from San Diego)	13,910	
	10.	Steamer Eureka	261,042	
	10.	Steamer Santa Maria	50,560	
	14.	Steamer Los Angeles	219,920	
	18.	Steamer Eureka	272,920	
	19.	Steamer Bonita	259,000	
	21.	Steamer Santa Maria	35,525	
	22.	Steamer Los Angeles	274,740	
	24.	Steamer Duncan	241,109	
	26.	Steamer Eureka	197,530	
	30.	Steamer Los Angeles	199,780	
	30.	Steamer Bonita	276,090	
				3,328,356
May	3.	Steamer Santa Maria	201,152	
	4.	Steamer Eureka	223,360	
	7.	Steamer Duncan	108,440	
	7.	Steamer Santa Cruz	22,060	
	8.	Steamer Los Angeles	177,430	
	12.	Steamer Eureka	383,460	
	16.	Steamer Los Angeles	317,799	
	17.	Steamer Yaquina	527,670	
	18.	Steamer Santa Maria	56,103	
	20.	Steamer Eureka	71,730	
	22.	Steamer Santa Cruz	781,770	
	24.	Steamer Los Angeles	237,950	
	28.	Steamer Eureka	271,510	
	28.	Steamer Yaquina	236,110	
	31.	Steamer Santa Maria	91,805	
				3,708,349
June	1.	Steamer Los Angeles	178,460	
	3.	Steamer Bonita	78,820	
	5.	Steamer Eureka	242,410	
	8.	Steamer Yaquina	239,150	
	9.	Steamer Los Angeles	199,040	

Statement of tonnage received and delivered to vessels over the Redondo wharf—Cont'd.

1890.		Pounds.	
June 13.	Steamer Santa Cruz	985, 650	
14.	Steamer Bonita	36, 150	
17.	Steamer Alex. Duncan	180, 425	
17.	Steamer Los Angeles	220, 120	
18.	Steamer Santa Maria	74, 606	
19.	Steamer Yaquina	167, 430	
21.	Steamer Eureka	328, 790	
25.	Steamer Los Angeles	229, 700	
26.	Schooner Challenger	120, 080	
28.	Steamer Santa Maria	27, 725	
28.	Steamer Alex. Duncan	96, 490	
29.	Steamer Eureka	247, 760	
			3, 112, 806
July 3.	Steamer Los Angeles	192, 765	
7.	Steamer Eureka	270, 900	
9.	Steamer Alex. Duncan	204, 211	
11.	Steamer Santa Maria	95, 455	
12.	Steamer Los Angeles	496, 450	
13.	Steamer Yaquina	133, 280	
15.	Steamer Eureka	368, 140	
19.	Steamer Los Angeles	370, 895	
20.	Steamer Santa Maria	69, 244	
22.	Steamer Alex. Duncan	358, 740	
23.	Steamer Eureka	404, 080	
27.	Steamer Los Angeles	565, 215	
29.	Steamer Santa Maria	31, 590	
31.	Steamer Eureka	428, 520	
31.	Steamer Bonita	634, 340	
			4, 623, 825
Aug. 2.	Steamer Alex. Duncan	819, 655	
4.	Steamer Los Angeles	280, 355	
8.	Steamer Eureka	320, 195	
9.	Steamer Santa Maria	16, 496	
9.	Steamer Santa Cruz	87, 600	
10.	Steamer Yaquina	547, 210	
12.	Steamer Los Angeles	341, 440	
15.	Steamer Bonita	272, 565	
16.	Steamer Eureka	364, 300	
19.	Steamer Santa Maria	21, 476	
20.	Steamer Los Angeles	441, 625	
23.	Steamer Alex. Duncan	1, 059, 855	
23.	Schooner Esther Buhne	70, 000	
24.	Steamer Eureka	322, 994	
28.	Steamer Bonita	476, 290	
28.	Steamer Los Angeles	542, 790	
31.	Steamer Santa Maria	383, 345	
			6, 368. 191
Sept. 1.	Steamer Eureka	443, 275	
3.	Steamer Alex. Duncan	811, 130	
5.	Steamer Los Angeles	535, 260	
8.	Steamer Santa Cruz	218, 450	
9.	Steamer Eureka	294, 560	
9.	Steamer Bonita	527, 370	
13.	Steamer Los Angeles	315, 695	
14.	Steamer Santa Maria	499, 149	
17.	Steamer Eureka	528, 755	
19.	Steamer Bonita	403, 450	
21.	Steamer Los Angeles	523, 360	
25.	Steamer Eureka	404, 745	
27.	Steamer Bonita	260, 200	
27.	Santa Maria	314, 791	
29.	Steamer Alex. Duncan	343, 050	
29.	Steamer Los Angeles	566, 590	
			6, 989, 830
Oct. 3.	Steamer Eureka	211, 180	
5.	Steamer Santa Cruz	381, 430	
7.	Steamer Los Angeles	379, 980	
11.	Steamer Eureka	267, 980	
13.	Steamer Santa Maria	246, 488	

Statement of tonnage received and delivered to vessels over the Redondo wharf—Cont'd.

1890.			Pounds.	
Oct.	13.	Steamer Bonita	204,760	
	14.	Schooner Webfoot	103,000	
	15.	Steamer Los Angeles	505,295	
	16.	Steamer Alex. Duncan	376,939	
	18.	Steamer Santa Cruz	573,620	
	18.	Steamer Eureka	304,964	
	23.	Steamer Los Angeles	334,045	
	23.	Steamer Santa Maria	139,396	
	24.	Steamer Bonita	393,460	
	27.	Steamer Eureka	341,490	
	29.	Steamer Santa Cruz	1,186,080	
	31.	Steamer Los Angeles	435,170	
				6,385,277
Nov.	3.	Steamer Bonita	707,720	
	4.	Steamer Eureka	439,390	
	8.	Steamer Los Angeles	611,925	
	9.	Steamer Bonita	115,180	
	11.	Steamer Santa Cruz	742,428	
	12.	Steamer Eureka	95,350	
	15.	Steamer Santa Maria	334,006	
	16.	Steamer Los Angeles	277,790	
	16.	Steamer Bonita	330,770	
	20.	Steamer Eureka	583,090	
	24.	Steamer Santa Cruz	410,810	
	25.	Steamer Bonita	210,560	
	26.	Steamer Santa Maria	504,136	
	28.	Steamer Eureka	311,895	
	28.	Schooner Challenger	2,050	
				5,677,100
Dec.	2.	Steamer Santa Cruz	329,130	
	2.	Steamer Bonita	134,010	
	6.	Steamer Eureka	538,110	
	8.	Steamer Santa Maria	56,175	
	11.	Steamer Bonita	114,610	
	11.	Steamer Santa Cruz	299,490	
	14.	Steamer Eureka	211,005	
	18.	Steamer Santa Cruz	368.230	
	22.	Steamer Eureka	341,585	
	23.	Steamer Bonita	153,741	
	27.	Steamer Santa Cruz	463,185	
	30.	Steamer Eureka	258,290	
1891.				3,267,561
Jan.	4.	Steamer Bonita	61,432	
	4.	Steamer Santa Cruz	340,800	
	7.	Steamer Eureka	175,150	
	11.	Steamer Santa Cruz	471,475	
	15.	Steamer Bonita	223,475	
	15.	Steamer Coos Bay	379,515	
	17.	Steamer Santa Maria	398,974	
	20.	Steamer Santa Cruz	543,310	
	23.	Steamer Coos Bay	161,520	
	26.	Steamer Bonita	514,781	
	27.	Steamer Santa Maria	88,830	
	28.	Steamer Santa Cruz	557,155	
	31.	Steamer Coos Bay	209,040	
	31.	Steamer Santa Maria	1,500	
				4,126,957
Feb.	5.	Steamer Santa Cruz	403,670	
	7.	Steamer Bonita	362,320	
	9.	Steamer Santa Maria	359,911	
	8.	Steamer Coos Bay	281,980	
	12.	Steamer Alex. Duncan	820,590	
	12.	Steamer Santa Cruz	202,240	
	17.	Steamer Coos Bay	228,795	
	18.	Steamer Santa Maria	589,860	
	19.	Steamer Bonita	345,930	
	20.	Steamer Santa Cruz	351,125	
	28.	Steamer Alex. Duncan	857,415	
				5,088,811

Statement of tonnage received and delivered to vessels over the Redondo wharf—Cont'd.

1891.			Pounds.	
Mar.	1.	Steamer Santa Maria	179, 446	
	3.	Steamer Santa Cruz	368, 810	
	3.	Steamer Newport	372, 540	
	4.	Steamer Coos Bay	166, 600	
	8.	Steamer Bonita	794, 470	
	12.	Steamer Coos Bay	346, 700	
	13.	Steamer Alex. Duncan	546, 790	
	17.	Steamer Santa Cruz	352, 640	
	17.	Steamer Bonita	107, 550	
	18.	Steamer Newport	205, 050	
	20.	Steamer Coos Bay	317, 520	
	24.	Steamer Alex. Duncan	132, 710	
	24.	Steamer Santa Cruz	649, 010	
	28.	Steamer Coos Bay	343, 340	
	29.	Steamer Bonita	480, 620	
				5, 363, 816
Apr.	1.	Steamer Santa Cruz	340, 750	
	5.	Steamer Coos Bay	398, 510	
	9.	Steamer Bonita	574, 720	
	10.	Steamer Santa Cruz	648,695	
	13.	Steamer Coos Bay	252, 440	
	15.	Steamer Alex. Duncan	477, 330	
	17.	Steamer Eureka	420, 120	
	17.	Steamer Bonita	43, 460	
	18.	Steamer Santa Cruz	587, 140	
	21.	Steamer Coos Bay	346, 050	
	24.	Steamer Alex. Duncan	625, 920	
	25.	Steamer Eureka	216, 755	
	29.	Steamer Coos Bay	203, 550	
	30.	Steamer Bonita	231, 870	
				5, 367, 310
May	3.	Steamer Eureka	221, 670	
	5.	Steamer Duncan	315, 790	
	7.	Steamer Bonita	291, 070	
	7.	Steamer Coos Bay	134, 350	
	11.	Steamer Sant Cruz	461, 300	
	11.	Steamer Eureka	278, 295	
	15.	Steamer Coos Bay	115, 830	
	15.	Steamer Bonita	336, 030	
	19.	Steamer Eureka	248, 355	
	22.	Steamer Westport	551, 250	
	23.	Steamer Bonita	254, 690	
	24.	Steamer Coos Bay	241, 695	
	27.	Steamer Eureka	267, 225	
	29.	Steamer Bonita	172, 100	
	30.	Steamer Santa Cruz	71, 430	
	31.	Steamer Coos Bay	309, 880	
				4, 270, 960
June	4.	Steamer Eureka	308, 840	
	6.	Steamer Bonita	49, 460	
	8.	Steamer Coos Bay	191, 620	
	9.	Steamer Alex. Duncan	167, 780	
	12.	Steamer Eureka	230, 405	
	15.	Steamer Bonita	239, 945	
	16.	Steamer Coos Bay	148, 795	
	18.	Steamer Yaquina	309, 200	
	20.	Steamer Eureka	205, 052	
	20.	Steamer Navarro	31, 000	
	21.	Steamer Alex. Duncan	370, 120	
	24.	Steamer Coos Bay	37, 250	
	24.	Steamer Bonita	242, 850	
	27.	Steamer Yaquina	112, 120	
	28.	Steamer Eureka	161, 450	
				2, 805, 887
July	2.	Steamer Pomona	13, 840	
	2.	Steamer Coos Bay	47, 300	
	4.	Steamer Bonita	202, 990	
	4.	Steamer Corona	153, 370	
	7.	Steamer Eureka	195, 360	

Statement of tonnage received and delivered to vessels over the Redondo wharf—Cont'd.

1891.		Pounds.	
July 8.	Steamer Pomona	113,075	
11.	Steamer Alex. Duncan	65,400	
11.	Steamer Coos Bay	134,650	
13.	Steamer Corona	210,895	
15.	Steamer Eureka	112,428	
15.	Steamer Alex. Duncan	87,400	
15.	Steamer Bonita	189,750	
17.	Steamer Pomona	230,430	
19.	Steamer Yaquina	214,030	
20.	Steamer Coos Bay	374,795	
22.	Steamer Corona	312,630	
24.	Steamer Eureka	473,390	
26.	Steamer Pomona	270,750	
29.	Steamer Bonita	461,340	
29.	Steamer Coos Bay	322,040	
31.	Steamer Corona	150,875	
31.	Steamer Navarro	29,500	
			4,366,238
Aug. 1.	Steamer Alex. Duncan	201,610	
2.	Steamer Eureka	243,650	
4.	Steamer Pomona	124,570	
7.	Steamer Coos Bay	199,050	
9.	Steamer Bonita	638,340	
9.	Steamer Corona	151,180	
11.	Steamer Eureka	121,250	
13.	Steamer Pomona	118,040	
16.	Steamer Coos Bay	360,080	
18.	Steamer Corona	78,320	
18.	Steamer Bonita	600,640	
20.	Steamer Eureka	143,630	
22.	Steamer Pomona	299,150	
25.	Steamer Coos Bay	263,913	
27.	Steamer Corona	222,970	
29.	Steamer Eureka	131,840	
29.	Steamer Bonita	371,420	
31.	Steamer Pomona	148,850	
21.	Schooner Pioneer	2,000	
			4,420,500
Sept. 3.	Steamer Coos Bay	267,085	
6.	Steamer Bonita	279,540	
7.	Steamer Eureka	186,400	
9.	Steamer Pomona	290,280	
12.	Steamer Coos Bay	85,060	
12.	Steamer Alex. Duncan	561,920	
14.	Steamer Santa Cruz	128,660	
16.	Steamer Eureka	307,220	
18.	Steamer Pomona	241,340	
21.	Steamer Coos Bay	459,880	
22.	Steamer Alex. Duncan	745,800	
24.	Steamer Santa Cruz	379,635	
25.	Steamer Eureka	347,265	
27.	Steamer Pomona	184,110	
30.	Steamer Coos Bay	400,470	
			4,864,665
Oct. 1.	Steamer Bonita	622,210	
4.	Steamer Eureka	444,169	
6.	Steamer Pomona	222,980	
9.	Steamer Bonita	429,930	
9.	Steamer Coos Bay	220,890	
13.	Steamer Eureka	234,290	
15.	Steamer Corona	241,340	
18.	Steamer Pomona	653,008	
21.	Steamer Eureka	413,520	
21.	Steamer Bonita	259,910	
24.	Steamer Corona	187,530	
25.	Steamer Santa Cruz	113,510	
28.	Steamer Pomona	737,420	
31.	Steamer Eureka	496,750	
			5,277,457

Statement of tonnage received and delivered to vessels over the Redondo wharf—Cont'd.

			Pounds.	
1891.				
Nov.	1.	Steamer Bonita	638,510	
	2.	Steamer Santa Cruz	22,320	
	2.	Steamer Corona	124,560	
	5.	Steamer Pomona	330,612	
	9.	Steamer Eureka	292,620	
	9.	Steamer Santa Cruz	335,950	
	11.	Steamer Corona	199,990	
	13.	Steamer Pomona	434,405	
	16.	Steamer Bonita	216,620	
	18.	Steamer Eureka	207,740	
	18.	Ship Kircudbrightshire	3,023,650	
	21.	Steamer Santa Cruz	393,195	
	23.	Steamer Coos Bay	410,230	
	25.	Steamer Pomona	275,490	
	25.	Schooner Esther Buhne	60,000	
	27.	Steamer Eureka	435,500	
	28.	Steamer Bonita	812,980	
	29.	Steamer Corona	100,230	
	20.	Steamer Corona	232,060	
				8,546,662
Dec.	3.	Steamer Coos Bay	337,770	
	3.	Steamer Santa Cruz	475,160	
	4.	Steamer Pomona	110,400	
	6.	Steamer Eureka	151,190	
	8.	Steamer Corona	109,520	
	8.	Steamer Bonita	214,960	
	11.	Steamer Coos Bay	298,870	
	12.	Steamer Santa Cruz	54,970	
	13.	Steamer Pomona	169,980	
	15.	Steamer Eureka	254,964	
	17.	Steamer Corona	224,885	
	21.	Steamer Coos Bay	135,000	
	22.	Steamer Bonita	224,490	
	22.	Steamer Pomona	293,320	
	24.	Steamer Eureka	209,200	
	24.	Steamer Santa Cruz	205,870	
	26.	Steamer Corona	122,210	
	29.	Steamer Coos Bay	143,780	
	31.	Steamer Mexico	137,900	
				3,874,440
1892.				
Jan.	2.	Steamer Eureka	178,520	
	4.	Steamer Corona	116,880	
	7.	Steamer Coos Bay	380,140	
	9.	Steamer Mexico	211,460	
	11.	Steamer Eureka	611,520	
	13.	Steamer Corona	380,390	
	16.	Steamer Bonita	241,480	
	16.	Steamer Coos Bay	325,920	
	18.	Steamer Mexico	224,260	
	20.	Steamer Eureka	181,410	
	22.	Steamer Corona	222,020	
	25.	Steamer Coos Bay	151,010	
	27.	Steamer Mexico	257,570	
	29.	Steamer Eureka	138,070	
	31.	Steamer Corona	183,130	
				3,803,780
Feb.	17.	Schooner Pioneer	8,500	
	15.	Steamer Cosmopolis	1,500	
	1.	Steamer Santa Cruz	368,840	
	2.	Steamer Bonita	150,630	
	3.	Steamer Los Angeles	220,400	
	5.	Steamer Mexico	363,210	
	7.	Steamer Eureka	226,000	
	9.	Steamer Duncan	589,484	
	9.	Steamer Corona	286,020	
	12.	Los Angeles	418,581	
	14.	Steamer Mexico	245,020	

Statement of tonnage received and delivered to vessels over the Redondo wharf—Cont'd.

1892.			Pounds.	
Feb.	15.	Steamer Bonita	216,900	
	16.	Steamer Eureka	320,610	
	18.	Steamer Corona	174,680	
	21.	Steamer Los Angeles	452,505	
	24.	Steamer Santa Rosa	213,830	
	25.	Steamer Eureka	211,855	
	27.	Steamer Corona	138,350	
	28.	Steamer Bonita	525,279	
				5,132,194
Mar.	10.	Schooner Pioneer	12,900	
	1.	Steamer Los Angeles	329,925	
	3.	Steamer Santa Rosa	269,385	
	5.	Steamer Eureka	474,010	
	7.	Steamer Bonita	870,170	
	7.	Steamer Corona	457,150	
	10.	Steamer Los Angeles	626,070	
	12.	Steamer Santa Rosa	211,125	
	14.	Steamer Eureka	353,710	
	16.	Steamer Santa Rosa	560,490	
	16.	Steamer Corona	417,690	
	19.	Steamer Bonita	297,770	
	19.	Steamer Los Angeles	481,360	
	21.	Steamer Santa Rosa	410,330	
	23.	Steamer Eureka	256,430	
	25.	Steamer Corona	619,140	
	25.	Steamer Santa Cruz	1,042,710	
	29.	Steamer Los Angeles	279,990	
	30.	Steamer Santa Rosa	514,842	
				8,483,197
Apr.	1.	Steamer Eureka	187,950	
	3.	Steamer Corona	432,730	
	6.	Steamer Los Angeles	281,585	
	8.	Steamer Santa Rosa	902,790	
	8.	Steamer Santa Cruz	18,100	
	10.	Steamer Bonita	487,520	
	10.	Steamer Eureka	130,780	
	12.	Steamer Corona	682,970	
	14.	Steamer Santa Cruz	203,611	
	15.	Steamer Los Angeles	233,240	
	17.	Steamer Santa Rosa	568,435	
	19.	Steamer Eureka	112,850	
	20.	Steamer Bonita	58,030	
	21.	Steamer Corona	347,955	
	24.	Steamer Santa Cruz	86,160	
	24.	Steamer Los Angeles	148,050	
	26.	Steamer Santa Rosa	389,060	
	28.	Steamer Eureka	124,070	
	30.	Steamer Queen	215,160	
	22.	Schooner Pioneer	47,910	
				5,658,955
May	3.	Steamer Los Angeles	112,710	
	5.	Steamer Santa Rosa	182,105	
	5.	Steamer Santa Cruz	41,440	
	6.	Steamer Eureka	108,710	
	9.	Steamer Corona	304,830	
	12.	Steamer Los Angeles	211,830	
	14.	Steamer Santa Rosa	315,390	
	16.	Steamer Eureka	144,300	
	18.	Steamer Corona	169,220	
	14.	Steamer Alcatraz	1,200	
	19.	Steamer Bonita	75,520	
	21.	Steamer Los Angeles	139,320	
	23.	Steamer Santa Rosa	218,610	
	25.	Steamer Eureka	120,540	
	27.	Steamer Bonita	112,050	
	27.	Steamer Corona	255,440	
	30.	Steamer Los Angeles	104,650	
				2,677,865

Statement of tonnage received and delivered to vessels over the Redondo wharf—Cont'd.

1892.			Pounds.	
June	1.	Steamer Santa Rosa	379,810	
	3.	Steamer Eureka	150,810	
	3.	Schooner Ruby A. Cousins	69,000	
	5.	Steamer Corona	225,600	
	8.	Steamer Los Angeles	173,070	
	10.	Steamer Santa Rosa	535,600	
	12.	Steamer Eureka	92,630	
	14.	Steamer Corona	258,970	
	17.	Steamer Bonita	201,900	
	17.	Steamer Los Angeles	156,175	
	19.	Steamer Santa Rosa	260,215	
	21.	Steamer Eureka	100,610	
	23.	Steamer Corona	242,200	
	18.	Schooner Bertie Minor	124,740	
	26.	Steamer Los Angeles	173,100	
	28.	Steamer Santa Rosa	316,990	
	29.	Schooner Pioneer	40,000	
	30.	Steamer Santa Cruz	139,940	
	30.	Steamer Eureka	116,220	
				3,757,580
July	2.	Steamer Corona	203,530	
	5.	Steamer Los Angeles	139,530	
	6.	Steamer Bonita	79,620	
	7.	Steamer Santa Rosa	124,240	
	9.	Steamer Eureka	88,280	
	11.	Steamer Corona	216,190	
	14.	Steamer Los Angeles	194,570	
	16.	Steamer Santa Rosa	610,685	
	16.	Steamer Duncan	73,000	
	17.	Steamer Bonita	84,060	
	18.	Steamer Eureka	145,140	
	20.	Steamer Corona	220,160	
	23.	Steamer Los Angeles	234,210	
	24.	Steamer Alki	1,359,520	
	25.	Steamer Bonita	94,230	
	25.	Steamer Santa Rosa	628,600	
	27.	Steamer Eureka	118,480	
	29.	Steamer Corona	420,385	
		15 Catalina boats	12,178	
				5,046,608
Aug.	1.	Steamer Los Angeles	172,375	
	3.	Steamer Santa Rosa	394,885	
	5.	Steamer Bonita	134,050	
	5.	Steamer Eureka	130,800	
	6.	Steamer Progreso	1,434,386	
	7.	Steamer Corona	406,910	
	10.	Steamer Los Angeles	167,240	
	12.	Steamer Santa Rosa	344,970	
	13.	Steamer Santa Cruz	115,710	
	14.	Steamer Eureka	96,020	
	16.	Steamer Corona	407,050	
	19.	Steamer Los Angeles	178,750	
	21.	Steamer Santa Rosa	170,440	
	23.	Steamer Eureka	145,530	
	23.	Steamer Bonita	16,000	
	25.	Steamer Corona	324,120	
	28.	Steamer Los Angeles	121,580	
	29.	Steamer Santa Cruz	80,000	
	30.	Steamer Santa Rosa	262,780	
		20 Catalina boats	19,355	
		Steamer Pelican, ten trips to Malibu Ranch	513,057	
				5,636,008

Statement of tonnage received and delivered to vessels over the Redondo wharf—Cont'd.

RECAPITULATION.

Month.	1889.			1890.		
	No. of vessels.	Merchandise.		No. of vessels.	Merchandise.	
		Pounds.	*Tons.*		*Pounds.*	*Tons.*
January	.....	.....	.....	14	3,824,996	1,913
February	.....	.....	.....	12	3,242,904	1,621
March	.....	.....	.....	15	3,140,368	1,570
April	.....	.....	.....	17	3,328,356	1,664
May	.....	.....	.....	15	3,708,349	1,854
June	4	380,870	191	17	3,112,806	1,556
July	5	428,199	214	15	4,623,825	2,312
August	14	1,810,025	905	17	6,368,191	3,184
September	13	2,222,091	1,111	16	6,989,830	3,495
October	16	2,429,700	1,215	17	6,385,277	3,193
November	15	4,720,449	2,360	15	5,677,100	2,839
December	16	4,529,928	2,265	12	3,267,561	1,634
Total	83	16,521,282	8,261	182	53,669,563	26,835

Month.	1891.			1892.		
	No. of vessels.	Merchandise.		No. of vessels.	Merchandise.	
		Pounds.	*ons.*		*Pounds.*	*Tons.*
January	14	4,126,957	2,064	15	3,803,780	1,902
February	12	5,088 811	2,544	19	5,132,194	2,566
March	15	5,363 816	2,682	19	8,483,197	4,242
April	14	5,367 310	2,684	20	5,658,955	2,829
May	16	4,270 960	2,136	17	2,677,865	1,339
June	15	2,805 887	1,403	19	3,757,580	1,879
July	22	4,366,238	2,183	34	5,046,608	2,523
August	19	4,420,500	2,210	49	5,636,008	2,818
September	15	4,864 665	2,432	.....	.....	.....
October	14	5,277 457	2,639	.....	.....	.....
November	19	8,546 662	4,273	.....	.....	.....
December	19	3,874,440	1,937	.....	.....	.....
Total	194	58,373,703	29,187	192	40,196,187	20,098

Year.	No. of vessel.	Merchandise.		Average per month.	
		Pounds.	*Tons.*	*Pounds.*	*Tons.*
1889 (June to December, inclusive)	83	16,521,282	8,261	2,360,183	1,180
1890	182	53,669,563	26,835	4,472,464	2,236
1891	194	58,373,703	29,187	4,864,475	2,432
1892 (January to August, inclusive)	192	40,196,187	20,098	5,024,523	2,512
Total	651	168,760,735	84,381	.....	.....

Average per vessel, 129.6 tons.

RECAPITULATION OF VESSELS.

	1889.	1890.	1891.	1892.
Merchandise	83	182	194	192
Lumber	18	29	61	39
Total	101	211	255	231

Total number of vessels 798.

NOTE.—The true number of arrivals is 16 less than the above, viz, 782, for the reason that that number of schooners carried freight besides their cargo of lumber, and appear on or about the same date in each list.

Statement of lumber, etc., received from vessels over Redondo Wharf.

			Feet.	
1889.				
May	17.	Steamer Jewel		327,180
June	8.	Schooner Bertha Dolbeer	365,590	
	26.	Schooner G. C. Perkins	498,200	
				863,790
July	2.	Steamer Protection	326,881	
	8.	Schooner Bertha Dolbeer	375,353	
	24.	Schooner John G. North	389,696	
	27.	Steamer Protection	52,357	
	27.	Steamer Newsboy	201,162	
	27.	Schooner Neptune	248,240	
				1,593,689
Aug.	18.	Steamer Protection		101,037
Sept.	7.	Schooner Edw. Park	218,622	
	15.	Schooner John G. North	439,845	
	24.	Schooner Tam O'Shanter	680,000	
				1,338,467
Oct.	12.	Schooner Eclipse	250,650	
	15.	Steamer Bonita (piles)	120,000	
	31.	Schooner Bertha Dolbeer	322,000	
				692,650
Nov.	4.	Schooner Esther Buhne	360,490	
	19.	Schooner John G. North	423,538	
				784,028
1890.				
Feb.	22.	Steamer Point Loma		300,051
Mar.	13.	Schooner La Gironde	265,407	
	20.	Schooner Emma Claudina	261,602	
				527,009
May	10.	Barkentine Eureka		339,622
June	5.	Steamer Passadena	157,880	
	17.	Schooner Challenger	410,478	
				568,358
July	2.	Barkentine Eureka	332,980	
	27.	Schooner South Coast	157,469	
	30.	Schooner Tam O'Shanter	700,000	
				1,190,449
Aug.	6.	Schooner Challenger	358,297	
	9.	Schooner Berthie Miner	355,097	
	10.	Schooner Esther Buhne	362,159	
	12.	Schooner North Bend	468,068	
	14.	Schooner Halcyon	361,906	
	15.	Schooner Enterprise	237,749	
				2,143,276
Sept.	11.	Steamer Noyo	348,745	
	12.	Steamer Emily	287,520	
	12.	Steamer Noyo	348,126	
				984,391
Oct.	3.	Schooner Webfoot	418,087	
	31.	Steamer Emily	299,076	
	31.	Schooner Jesse Minor	325,379	
				1,042,542
Nov.	1.	Schooner Halcyon	311,553	
	4.	Steamer Noyo	337,595	
	8.	Schooner Pioneer	480,860	
	27.	Schooner Challenger	363,814	
				1,493,822
Dec.	1.	Steamer Casper	301,540	
	5.	Steamer Noyo	207,000	
	5.	Schooner Bertha Dolbeer	296,031	
	25.	Steamer Noyo	213,360	
				1,017,931
1891.				
Jan.	3.	Steamer Noyo	234,208	
	14.	Steamer Noyo	311,092	
	29.	Schooner Beulah	434,901	
				980,201

Statement of lumber, etc., received from vessels over Redondo Wharf—Continued.

1891.			Feet.	
Feb.	7.	Schooner Esther Buhne	360, 272	
	7.	Schooner James A. Garfield	406, 100	
	12.	Brig E. W. Lucas	320, 107	
	20.	Schooner Bertie Miner	335, 240	
	28.	Schooner Jesse Minor	323. 387	
				1, 745, 106
Mar.	5.	Steamer Protection	22, 750	
	6.	Schooner Marion	384, 229	
	6.	Schooner Webfoot	502. 789	
	6.	Steamer Newsboy	305, 202	
				1, 214, 970
Apr.	12.	Steamer Farrellon	417, 798	
	13.	Schooner Tam O'Shanter	652, 900	
	13.	Schooner Marion	312, 792	
				1, 383, 490
May	3.	Schooner Esther Buhne	318, 900	
	7.	Schooner Hays	256, 000	
	9.	Steamer Newsboy	198, 912	
	11.	Steamer Jewel	391, 296	
	13.	Schooner Enterprise	223, 683	
	18.	Steamer Cooper	125. 728	
	19.	Steamer Westport	328, 256	
	19.	Steamer Newsboy	143, 904	
	26.	Steamer Navarro	199, 968	
				2, 186, 647
June	1.	Schooner Seven Sisters	185, 312	
	9.	Schooner Gardner City	569, 400	
	7.	Steamer Newsboy	259, 310	
	18.	Schooner Seven Sisters	176, 256	
	19.	Steamer Navarro	84, 206	
	21.	Steamer Newsboy	127, 712	
	26.	Steamer Cosmopolis	387, 658	
	30.	Steamer Navarro	285, 181	
				2, 075, 035
July	4.	Steamer Jewel	337, 664	
	6.	Barkentine North Bend	449, 837	
	7.	Schooner Lillebonne	328, 611	
	14.	Schooner Bertie Minor	349, 728	
	17.	Schooner Ida McKay	240, 000	
	17.	Schooner Esther Buhne	345, 836	
July	19.	Steamer Newsboy	260, 680	
	20.	Schooner Jessie Miner	319, 000	
	24.	Steamer Navarro	322, 656	
	25.	Steamer Tillamook	274, 616	
				3, 228, 628
Aug.	1.	Schooner Pioneer	555, 000	
	15.	Schooner Jas. A. Garfield	419, 969	
	18.	Steamer Navarro	282, 481	
	27.	Steamer Jewel	352, 544	
	28.	Schooner Webfoot	425, 048	
	29.	Schooner Laura Madsen	494, 540	
				2, 529, 582
Sept.	3.	Schooner Azalia	465, 724	
	11.	Steamer Navarro	296, 782	
	13.	Schooner Bertha Dolbeer	337, 089	
	30.	Schooner Marion	325, 156	
				1, 424, 751
Oct.	7.	Steamer Cosmopolis	515, 900	
	12.	Steamer Navarro	285, 353	
				801, 253
Nov.	11.	Steamer Newsboy	218, 864	
	12.	Schooner Portland	585, 950	
	13.	Schooner Esther Buhne	357, 000	
	14.	Schooner Pioneer	546, 750	
	14.	Schooner Jas. A. Garfield	408, 900	
	21.	Schooner Laura Madsen	438, 305	
	21.	Schooner Marion	315, 431	
				3, 871, 200
Dec.	17.	Steamer Navarro		248, 601

Statement of lumber, etc., received from vessels over Redondo Wharf—Continued.

1892.			Feet.	
Jan.	7.	Schooner Esther Buhne	373, 528	
	15.	Steamer Navarro	292, 136	
	17.	Schooner Pioneer	497, 689	
	17.	Schooner Bertha Dolbeer	293, 804	
	19.	Steamer Cosmopolis	349, 660	
				1, 806, 817
Feb.	9.	Schooner Marion	324, 230	
	15.	Steamer Cosmopolis	362, 099	
				686, 329
	29.	Schooner Esther Buhne	333, 600	
Mar.	10.	Schooner Pioneer	519, 100	
	14.	Steamer Navarro	192, 160	
				1, 044, 860
	27.	Schooner J. F. Jewett	580, 029	
Apr.	16.	Steamer Silver Springs	290, 240	
	18.	Schooner Halcyon	403, 180	
	22.	Schooner Pioneer	517, 660	
				1, 791, 109
May	10.	Barkentine Eureka	290, 945	
	10.	Barkentine Eureka	3, 766	
	10.	Barkentine Eureka	324, 250	
	14.	Steamer Alcatraz	330, 590	
	22.	Schooner J. A. Garfield	450, 000	
				1, 068, 961
	28.	Schooner Halcyon	361, 245	
	28.	Schooner Ruby A. Cousins	223, 987	
June	3.	Barkentine Marion	313, 338	
	10.	Steamer Navarro	330, 144	
	17.	Schooner Esther Buhne	361, 762	
	18.	Schooner Volant	389, 550	
	18.	Schooner Bertie Minor	293, 543	
	26.	Steamer Newsboy	25, 200	
	18.	Schooner Pioneer	540, 000	
				2, 838, 769
	25.	Schooner Bertha Dolbeer	336, 630	
July	14.	Schooner Lily	237, 160	
	18.	Schooner Halcyon	345, 230	
	23.	Schooner Edward Parks	237, 834	
	23.	Schooner Azalia	461, 493	
				1, 618, 347
Aug.	1.	Schooner Esther Buhne	372, 572	
	2.	Schooner Ruby A. Cousins	254, 559	
	4.	Schooner Bertha Dolbeer	417, 148	
	8.	Barkentine Portland	543, 654	
	15.	Schooner Pioneer	530, 871	
	15.	Steamer Casper	83, 500	
	15.	Barkentine North Bend	482, 953	
	31.	Schooner Halcyon	373, 207	
				3, 058, 464

Statement of lumber, etc., received from vessels over Redondo Wharf—Continued.

RECAPITULATION.

Month.	1889.		1890.		1891.		1892.	
	No. of vessels.	Lumber.	No. of vessels.	Lumber.	No. of vessels.	Lumber.	No. of vessels.	Lumber.
		Feet.		*Feet.*		*Feet.*		*Feet.*
January	.....	.....	.....	.....	2	980,201	5	1,806,817
February	.....	.....	1	300,051	5	1,745,106	2	686,329
March	.....	.....	2	527,009	4	1,214,970	3	1,044,860
April	.....	.....	.....	.....	3	1,383,490	4	1,791,109
May	1	327,180	1	339,622	9	2,186,647	3	1,068,961
June	2	863,790	2	568,358	8	2,075,035	9	2,838,769
July	6	1,593,689	3	1,190,449	10	3,228,628	5	1,618,347
August	1	101,037	6	2,143,276	6	2,529,582	8	3,058,464
September	3	1,338,467	3	984,391	4	1,424,751	.....	.....
October	3	692,650	0	1,042,542	2	801,253	.....	.....
November	2	784,028	4	1,493,822	7	2,871,200	.....	.....
December	.....	.....	4	1,017,931	1	248,601	.....	.....
Total	18	5,700,841	29	9,607,451	61	20,689,464	39	13,913,656

Year.	No. of vessels.	Lumber.	Average per month.
		Feet.	*Feet.*
1889 (May to December, inclusive)	18	5,700,841	814,406
1890	29	9,607,451	960,745
1891	61	20,689,464	1,724,122
1892 (January to August, inclusive)	39	13,913,656	1,739,207
Total	147	49,911,412	.....

Average per vessel, 339,533 feet.

Statement of number of passengers passing over Redondo wharf from February to August, 1892, inclusive.

Month.	Inward.	Outward.	Total.
To and from Pacific Coast Steamship Co's. boats.			
February	205	202	407
March	306	278	584
April	276	294	570
May	283	269	552
June	311	350	661
July	352	449	801
August	384	567	951
Total	2,117	2,409	4,526
To and from Catalina boats.			
July	357	557	914
August	1,235	1,134	2,369
Total	1,592	1,691	3,283

RECAPITULATION.

Pacific Coast Steamship Co's. boats	2,117	2,409	4,526
Catalina boats	1,592	1,691	3,283
Total	3,709	4,100	7,809

3. Letter from K. H. Wade, General Manager, Southern California Railway Company.

SOUTHERN CALIFORNIA RAILWAY COMPANY,
Los Angeles, September 7, 1892.

GENTLEMEN: With a view of assisting your honorable commission in determining what can and what should be done to advance the shipping interests of this vicinity, permit me, as the representative of the Southern California Railway Company, Santa Fe route, to bring the following points to your attention; this with the understanding that it is your purpose to recommend what will be the most efficient and profitable point for the expenditure of governmental moneys to assist in protecting the shipping interests and developing ocean trade to and from southern California.

Our connections with San Diego are such that we are able to transact at that point promptly and readily all the ocean business offered, having ample wharves and room for all future developments.

We also have direct connections with the wharf at Redondo and the coast at South Santa Monica, and over the Santa Ana Railroad we have connection with the wharf at Newport, where we receive and deliver considerable traffic. Of course the larger portion of our trade has been through San Diego. Yet, the annexed figures, showing the tonnage, the arrivals and departures at Redondo, indicate that the business transacted through that point is steadily increasing. We can testify that the largest ships sailing on the ocean have landed at Redondo regularly on all their trips, receiving and delivering freight and passengers without difficulty.

If this landing or wharf can be protected by some kind of floating breakwater, such as I understand is being used with good effect in other places, I can see no reason why the business of this vicinity could not be transacted safely at that point. I judge that such an arrangement can be effected more cheaply at Redondo than at any other point on the coast. The situation is such that other lines of railway could be easily constructed to reach these protected waters.

We especially desire to see the facilities furnished or provided by the Government put into such shape or condition that they may not be monopolized by some opposition railroad to the detriment and against the interests of the Santa Fe system. Nor do we desire to monopolize the improvements made or control the facilities furnished with public money, to the exclusion of other roads. What, in our opinion, ought to be done, should be for the "greatest good to the greatest number."

We shall be glad to furnish you statements or information of any character at our command, either from our chief engineer or other officers of our operating departments, from time to time, as your investigation progresses.

Respectfully submitted.

K. H. WADE,
General Manager.

The Board of Advisory Engineers,
Col. W. P. CRAIGHILL, U. S. A., *Chairman.*

Statement showing receipts at Redondo.

Year.	Lumber.		Merchandise.	
	No. of vessels.	Quantity.	No. of vessels.	Quantity.
		Feet.		*Tons.*
1889 (May to December)	18	5,700,841	83	8,261
1890	29	9,606,450	182	26,835
1891	61	20,689,464	194	29,187
1892 (January to August)	39	13,913,656	192	20,098

4. Letter and Memorandum from W. R. Corson.

SANTA MONICA, *September 6, 1892.*

GENTLEMEN: You have invited communications upon the question of a harbor of refuge for this portion of the Pacific Coast, and in response to this request I wish to put before you a view of the subject which does not seem to have met with any attention from those who have advocated one or another of the sites that have been suggested.

Wharves may be built, and used, and in course of time abandoned in favor of some more suitable locality, but a breakwater is an undertaking of such magnitude that it must be assumed to be a permanent and enduring structure, not likely to be superseded; and it is necessary to look forward many years, and to consider what will be the probable extent of use which the harbor will subserve in the centuries to come.

Southern California is capable of sustaining in comfort over a very considerable part of its surface a family on every 10 acres; and on other portions a population more or less dense of cultivators. Needless to say that this means also a very large town population, and large aggregation of industries to supply the wants of the home market, and a large commerce to supply other markets and to bring in what the country does not produce. I do not think it is any exaggeration to look forward to a population of 10,000,000, for whom Los Angeles will be the capital city and the great center of distribution, and its port the entrepôt of commerce.

With such a prospect in view it is necessary to look far beyond a provision of wharves projecting into the ocean under the protection of a breakwater and occupying space which ought to be preserved as free harbor room, and I propose to show that there is a natural formation of land at Santa Monica which lends itself to the formation of wet docks to the utmost extent that may be required.

The town of Santa Monica, as laid out by Messrs. Jones and Baker, occupies a portion of a hanging level sloping from north to south; a bluff a mile and a half long and from 60 to 120 feet high forms the sea frontage; and it extends inland without a break about 2 miles, forming a site for a city not to be excelled in fitness. Southwards the bluff dies away and is succeeded by sand hills extending to Ballona, about 4 miles. Behind these sand hills there stretches inland for miles a great plain very little above sea level, and here may be formed when the times require them a series of docks at a minimum of cost, approached from the sea by a channel dredged through the beach and the shallow water and by a cutting through the sand hills. On the quays, sheds and warehouses would receive the goods; railways traverse every part, and swing bridges connect the opposite sides.

But all this, it will be said, is very far in the future. So it is, but none the less is it necessary to consider these things in connection with the proposed breakwater. It would never do, I apprehend, to have the entrance channel to these docks open to the long roll of the Pacific, and it seems therefore to indicate the position chosen by the former commissioners, and shown on their map to be the most suitable for the breakwater. The combination of circumstances is not met with at any other part of this bay. An equal area of harbor protected by a breakwater built in a similar depth of water may be duplicated some distance northward, but between water and mountain there is only a beach, and every convenience for traffic would have to be constructed in water.

A copy of the portion of the map given by the commissioners is appended, showing the plan of the breakwater as delineated by them. I have added at each end of the harbor space a wharf or pier; these indicate an inclosed area 2 miles by ¾ of a mile, or 960 acres, and between that space and the breakwater 720 acres, making in all 1,680 acres. Whether these wharves should be solid or open is a question for hydraulic engineers to determine with reference to the currents and the clearance or deposit of silt.

The idea of wet docks is also indicated on the map, and an extension as a canal on the banks of which factories and works would be conveniently placed with reference to sea traffic. Dry docks for ship-repairing and slips for shipbuilding would find suitable locations also; but it is not necessary to follow out details that will naturally suggest themselves to you in development of the general idea.

The foregoing statements refer to the use of the harbor as a port, but the primary intention of a harbor of refuge for passing ships is by no means lost sight of. The access both ways is with ample sea room and no danger of a lee shore. There is at times a heavy sea from the west, the result of storms in midocean, but the storm winds here are southeast and northwest, with occasionally a high land wind, called a norther, blowing offshore.

Neither is the harbor looked upon as for Los Angeles merely. In the position indicated there is free access to it from all parts, and goods consigned to or from other towns need not, in many cases, even pass through Los Angeles. This is what ought to be the case with a great work constructed at the cost of the Commonwealth.

Your obedient servant,

W. R. CORSON.

The honorable the commissioners appointed by Congress to report upon a site for a harbor at San Pedro or in the bay of Santa Monica, California.

SOME POINTS OF COMPARISON BETWEEN SAN PEDRO AND SANTA MONICA AS REGARDS THE SUITABILITY OF EITHER PLACE FOR A DEEP-SEA HARBOR OF REFUGE.

Santa Monica Bay is an indentation of the land nearly semicircular, the chord line being 26⅜ long, and the versed sine, or depth of the curve, 10⅜ miles. It faces the southwest, has a chain of hills rising to 1,946 feet on the northwest, and one of hills rising to 1,475 feet on the southeast, with a plain on the northeast extending back to Los Angeles, 13 miles.

The northwest range, called the Santa Monica Mountains, extends inland to the north of Los Angeles, and shelters the plain as well as the bay. The southeast range, called Los Palos Verdes, is short, and being also more than 400 feet lower than the other, is less effective as a wind-break; *i. e.*, it is effective over a less extent of surface.

San Pedro Bay is formed simply by a promontory, which shelters it on the northwest, while it is open to the ocean between the coast line, which runs southeast, and the line of the promontory, which runs southwest. It is rather a bight than a bay. The same hills, the Palos Verdes, shelter it on the northwest which shelter Santa Monica on the southeast. Both ranges of hills fall away in height towards their ocean extremities, so that the measure of protection is less as the distance seaward from the general coast line is greater.

It is known to everybody that the storms during which ships require shelter on this coast are the southeast and the northwest; the former a wet wind and the latter a dry wind. From other quarters there are no storms, though from the west, or rather a little south of west, come the daily breeze and the long roll that breaks in surf on the beach. At times also there are heavy seas from the west or southwest, but they are the result of storms that do not reach this coast.

Protection given by the hills is, however, not absolute. A southeast wind will be felt on the northwest shore of Santa Monica Bay, and a northwest wind on the southeast shore to some extent.

The exposures measured by angles as given by the commissioners of 1890 are as follows:

From Santa Monica site of breakwater, 100° 50′.

From San Pedro site of breakwater at Point Fermin, 174° 15′.

San Pedro is altogether exposed to the southeast wind.

A line drawn from Point Vincente due northwest to the opposite coast of Santa Monica Bay shows that almost the entire bay is covered from the southeast by the protection of the Palos Verdes Hills, protection more or less according to the distance from the hills that form the wind-break.

If Catalina Island is to be considered a breakwater, it would protect San Pedro from a southwest wind and about two-thirds of Santa Monica Bay from a south wind; but there are no storms from these quarters, and if there were, the island is too far off for efficient protection.

In Dana's "Two Years Before the Mast," published forty years ago, the author speaks of San Pedro Bay unlovingly. He states that on each occasion of anchoring there the cable had to be slipped and the ship run to Catalina for shelter—once for southeast and once for northwest wind—and the reason for the latter was that, having to anchor several miles from the north shore of the bay, the protection of the hills was lost. Indeed, the ship would be almost outside of the protection of the hills, which fall away in height toward the promontory. In Santa Monica Bay the harbor, being at the crown of the semicircle, would have the full protection from the southeast wind; and on the northwest, the hills, as already described, besides being higher, continue in a long range inland, and form a more perfect barrier.

It is evident that navigators at that time were ignorant of the conditions of Santa Monica Bay. The ship could have found shelter there much sooner than at Catalina.

In the foregoing statement it is assumed that the positions given by the 1890 commissioners for a harbor are the most suitable in each case. With regard to these the commissioners will observe that in approaching the harbor at San Pedro in a southeast storm a vessel runs a risk of being driven on to a lee shore. In Santa Monica Bay the ship has sea room whether the storm be southeast or northwest.

Respectfully submitted to the commissioners appointed by Congress to report upon the same.

W. R. CORSON.

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5. LETTER FROM CAPTAIN A. A. POLHAMUS.

CORONADO, *September 10, 1892.*

GENTLEMEN: The following is a statement of wrecks that have occurred at San Pedro.

There was only a deputy collector at San Pedro prior to 1880, it being a part of the San Diego district. The books were kept here in San Diego, so I supposed that

I would find a record of the San Pedro wrecks here, but such a record has not been kept. However, I can give you the history of them all, as I was there and witnessed them; as for the dates, they will be sent to you from Santa Monica.

The southeast gales on this coast always start to windward and work down the coast against the wind. They generally take from 24 to 30 hours to make the distance from San Francisco to San Pedro. The stronger the wind, of course the shorter the time it would take. We had arranged with the telegraph company to inform us when the wind blew from the southeast at San Francisco over 30 miles an hour. I would then go out and warn the shipping to get ready for a blow. This they would do either by going to sea or by sending down their yards and dropping another anchor, paying out chain on the first anchor until both took a strain.

The bark *Nicholas Biddle*, a very old vessel, was loaded with lumber, and had discharged her deck load. I spoke the captain at dark and told him to get underway. He slipped his anchor and stood out to sea, standing to the east.

In going out of San Pedro in a southeast gale you want to stand to the east for one hour, then to the southwest for two hours. This will put you under the lee of Catalina.

The *Nicholas Biddle* stood to the east for nearly two hours. Some men that lived on shore and were helping discharge told the captain that if he did not go about she would go on the beach. He told them to mind their own affairs. A few moments after she struck, and was a total wreck, 12 miles east of San Pedro. It is needless to say that she was well insured.

The brig *Kalvah* was told by me to go to sea, but the captain thought that he could ride it out. The next morning found the brig on the beach. The captain owned one-fourth of her, his share being heavily insured.

The bark *Adelaide Cooper* parted her anchor chain. They put sail on her and tried to run her over the bar, but she was dragging so much chain that she would not steer. She struck Deadmans Island, drifted into the channel, and sank. The Government afterwards blew up the wreck to get it out the channel.

The bark *Amie* parted her chain in a northeast squall. If they had let her drift she would have cleared the point, but they put sail on her to turn her around. She turned with her head toward the shore, the sail forged her ahead, and before she could make the full turn she was on the rocks at Point Fermin.

February 8, 1887, the ship *America* parted her chain in a southeast gale, and drifted over the bar. She pounded her bottom so as to start her leaking, but she did not sink.

On February 14, of same year, the ship *Kennebec* struck bottom and foundered in 6 fathoms of water. She was pumped out, and is now running.

February 14, 1887, the barkentine *San Louis* should have gone to sea—hung on too long, parted one chain, tried to get under way; it was too late. She was driven onto the rocks near Point Fermin, a total loss.

The ship *Respigdera*, September 26, 1888, came down the channel with a fair wind. They did not know there was a reef off the point, and coming too close struck a rock. Total loss.

The bark *D. F. Murray* was wrecked at the Redondo Beach wharf, but I do not know cause.

The above are all the wrecks that I can remember, and, I think, all that have occurred in the neighborhood of San Pedro since 1860, with the exception of the brig *W. D. Rice*, loaded with merchandise, that ran ashore on Point Vincente in a thick fog in the early part of 1868.

Very respectfully yours,

A. A. POLHAMUS.

The Hon. BOARD OF UNITED STATES ENGINEERS.

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6. LETTER FROM CAPTAIN E. ALEXANDER.

REDONDO BEACH, CAL., *Steamship Santa Rosa, September 10, 1892.*

DEAR SIR: It has been suggested that I give my opinion as to the benefits to accrue to shipping at Redondo by reason of the construction of a floating breakwater at this place and my general opinion of the same. After some thought upon the subject, I am firmly of the opinion and can see no reason why some such device as a floating breakwater would not be a complete success and accomplish the desired results. I have tied up at the wharf in very rough weather and my ship has laid easier at Redondo wharf than she would at any other on the coast under the same weather (and I have landed at all the wharves on the coast) owing largely to the depth of water and entire absence of undertow. I would say that a floating breakwater outside the wharf from three-fourths to 1 mile, extending parallel with the shore about a mile

in length, would make the surface as smooth as at San Pedro or San Diego, as all the roughness at Redondo is on the surface and even in the worst of weather the disturbance does not extend deeper than 5 to 8 feet. From personal observation I am inclined to believe a floating breakwater, say two-thirds submerged, would best answer the purpose. I have never seen a floating breakwater and do not know how it is constructed, but I understand there are several in existence and that they are a success, and I am free to say that one constructed at Redondo would be of great value and protection to shipping at this port.

Yours, very truly,

E. ALEXANDER,
Commander.

Col. WM. P. CRAIGHILL.

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7. LETTER FROM CAPTAIN J. A. MUIR.

SOUTHERN PACIFIC COMPANY,
Los Angeles, September 14, 1892.

DEAR SIR: I send you by to-day's mail, a chart which has been prepared by Capt. Dornfield, of the Wilmington Transportation Company, who has been in charge of their lighterage business at San Pedro for many years.

On this chart Capt. Dornfield has endeavored to show the location of ships at anchorage, that have afterwards been wrecked at that port.

The brig *Caloa*, February 8, 1876, was lying at San Pedro, loaded with railroad ties. She dragged her anchor, then parted both cables and went ashore on the reef a little to the southwest of Timms Point, bearing from Deadmans Island about SSE. She was anchored in about 4 fathoms of water.

The bark *Nick Biddle*, April 8, 1876, loaded with lumber, dragged in a southeast gale, then parted her chain, but got sails on and attempted to beat out of San Pedro Bay against the southeast wind, but was wrecked southwest of Anaheim Landing. She was anchored in 5 fathoms of water bearing from Deadmans Island about ESE.

The bark *Adelaide Cooper*, December 20, 1879, loaded with lumber, parted cables in a southwest gale, made sail with the intention of getting into the creek, but on account of dragging broken cables under her bottom she became unmanageable, took a sheer, and went ashore on the inside of Deadmans Island, head about north, stern out. Proved to be a total loss. Was anchored in about 4 fathoms of water, and bore about S. by E. half E. from Deadmans Island.

The bark *Amy*, January 12, 1882, loaded with lumber, was anchored in 4 fathoms of water, bearing from Deadmans Island about S. by E., parted cables in the northeast gale, was driven ashore on the eastern cliffs of Point Fermin, and proved a total loss.

The ship *America*, February 8, 1887, anchored in 7 fathoms of water, bearing from Deadmans Island about S. by E. half E. dragged her anchors. Through some accident her starboard cable was not securely fastened and was lost entirely. They got hawsers out, and with two stem anchors and one kedge anchor, held on for some hours, the ship in the meantime striking on the rocks over which the bell buoy is now placed. Towards morning they found that the ship had dragged close into Deadmans Island, and, it being flood tide, it was thought that the ship, by being swung a little, would drift into the inner harbor—the cables were let go; but the ship, being unmanageable, took a sheer and went ashore on the island, had her back broken, was towed to San Francisco, condemned, and sold. At the time of the wreck she had about 250 tons of coal in her.

The barkentine *San Luis* February 14, 1887, loaded with coal, with a deck load of lumber, dragged and slipped her cables, made sail, tacked toward Long Beach, then tacked toward Point Fermin, but could make no headway against the southwest gale, and finally went ashore on the cliffs of the Government reservation. Was anchored in 5 fathoms of water and bore from the Island about E. by S.

The ship *Kennebec* February 14, 1887, anchored in 7 fathoms of water, bearing about SE. by E. from Deadmans Island, had about 800 tons of coal on board when she dragged anchors, gradually sagging into about 2½ fathoms of water, broke her back, was towed to San Francisco, condemned and sold.

The ship *R. P. Buck* February 14, 1887, arrived at San Pedro on February 13, with 2,500 tons of coal, dropped anchor in 7½ fathoms of water, bearing about SSE. from Deadmans Island. She was drawing 24½ feet of water. She dragged with both anchors out in the shallow water and was injured so that she leaked badly, lost most of her keel and was otherwise injured on the bottom. She had to be towed to San Francisco for repairs.

The same night the ships *Ocean King* and *Edward O'Brien* with both anchors out, dragged all over the bay.

During the same gale the barkentine *John Worster* slipped cables after finding herself dragging, and proceeded to San Diego.

The schooner *Courser* finding she was dragging her anchors, slipped cables, made sail and got into the San Pedro inner harbor.

The ship *Respegaderia*, September 6, 1888, loaded with 400 tons of coal, while rounding Point Fermin with light westerly wind got on the reef with a strong easterly current and became a total loss.

Capt. Dornfield, who, as I stated, has been in charge of all the ships handled by the Wilmington Transportation Company at San Pedro for many years, states further, that by going over the matter carefully he could mention a number of vessels that have dragged their anchors, but got out of danger without injury to themselves.

He also states he would not condemn all the holding ground in San Pedro Bay as bad, but, judging by the many accidents and his own experience, he does not think it safe for vessels to go there during the winter season, account of heavy gales from the southeast and southwest.

Hoping I have given you all the information necessary, in accordance with your request at the meeting before the Chamber of Commerce, I am,

Yours, respectfully,

J. A. MUIR.

Col. W. P. CRAIGHILL,
Chairman Board of Engineers.

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8. MEMORANDUM BY PROF. GEORGE DAVIDSON, UNITED STATES COAST AND GEODETIC SURVEY.

SAN FRANCISCO, *September 7, 1892.*

My experience begins with June, 1852, when the disabled steamer *California* anchored in San Pedro Bay. The Navy-Yard Commission was on board of her and to prevent great delay, the members were carried to San Francisco by the U. S. Coast Survey steamer *Active.*

I mention this merely because the *Active* was then transporting me for the chronometer determinations of the longitude of all southern points with San Francisco. Before this incident, and afterwards, my duties compelled me to land through the surf at all the exposed stations on the main shore and the Santa Barbara Islands. And this bears upon the following statement.

In December, 1852, after selecting a base line, I was waiting for a steamer at the old adobe of San Pedro. The brig *Fremont* was at anchor off San Pedro, and rode out a strong southeast gale of two or three days' duration (See Coast Pilot 1889, p. 38 and 40). The judgment there expressed is that formed from my own experience through subsequent years, the experience of Coast Survey officers, naval and civilian, and of captains whom I have known to be familiar with the place.

At the time of the *Fremont's* riding out the gale I had no doubt that I could have landed on the beach in a well-manned boat from the *Fremont.*

I have learned no facts to weaken my judgment expressed in the Coast Pilot. Vessels that have dragged into danger—and they have been remarkably few in the last forty-two years—have anchored in shoal water too close inshore, at anchor not well found in ground tackle or both.

And I express my judgment with confidence because I had command of the surveying brig *R. H. Fauntleroy* for four years in the waters from San Francisco to the Gulf of Georgia, and have anchored hundreds of times over every character of bottom and varying depths of water, under stress of weather, in exposed situations, with strong currents, and in very heavy weather. The northern weather is much heavier than the southern.

In our "southeasters," the swell of the Pacific comes from the southwest and along the greater part of the coast, breaks squarely upon the shore, reaching from profound depths at a very short distance from land. The only fairly protected part of the coast is that from Point Conception eastward and southward to between San Pedro and San Diego. There is, however, a marked peculiarity of the winter storms of this coast which I have expressed in the Coast Pilot, the farther north we go in winter the heavier are the gales. In this low latitude of $33\frac{3}{4}^\circ$ the winter storms are relatively not severe, and, combined with this character of the storms, the great islands of Santa Barbara form barriers against the full force of the winter swell.

In the latitude of San Francisco, $37\frac{3}{4}^\circ$, the southwest swell frequently breaks all over the San Francisco bar in 6 or more fathoms of water, while the swell of the same storm would not break on the bar of San Diego, where the depth of water is less than 4 fathoms. (See Coast Pilot, p. 18.) San Pedro is but 95 miles from San Diego and not so open to the swell, because the great islands of San Clemente and Santa Catalina serve to break up the broad ocean swell of the winter gales.

This low latitude and these protecting islands are very important factors in judging of the safety of any anchorage. We know that it occasionally breaks on the

shoal spots of 9¼ fathoms off Cape Mendocino, and I have laid off the breaking bar of Humboldt for two weeks, but at the same time there would be no break on San Diego bar and no danger in San Pedro Bay. From the summit of Tamalpais I have seen a large English vessel forced to leave her anchorage on the southern edge of San Francisco bar before the swell was breaking, and such a vessel would lie in absolute safety at the same time in San Pedro Bay.

Smaller vessels at San Pedro, even well found in ground tackle, necessarily do not care to ride out a "southeaster" there, with its wear and tear, and the annoyances when the lee of Santa Catalina Island is only 18 miles distant, and affording them ample protection. In this respect the anchorage is almost as much favored as Hueneme, San Buenaventura, and Santa Barbara.

One plain proof of the comparative weakness of the destructive action of the southeast storms on this southern coast is seen in the very slow wearing away of the sandy cliffs and of the bluff immediately at San Pedro; nor could the exposed wharves of this region stand if the destructive forces of the winter storms was great.

In regard to the anchorage of San Pedro I have always believed that there was good bottom for holding ground. The bay is the northwestern limit of a very extensive plateau of comparatively shoal water along the seaboard from Point Fermin to about Newport, and the whole country behind the shore is sandy and so low that in winter it is flooded for miles inland by the rains and the overflowing of the low banks of the numerous streams frequently changing their courses. The detritus from these streams is moved seaward and principally to the westward over this plateau, and helping to extend it, by the action of the inshore eddy current.

I believe that this material, mud, sand, and gravel, is sufficiently deep to give good holding ground for any sized vessel if properly found in ground tackle.

I may mention here that for many years I have believed that San Pedro Bay is an admirable location for a breakwater to form a first-class harbor of refuge against winter storms; when the commerce of the southern coast demands it. Gen. B. S. Alexander and myself frequently discussed the importance of a breakwater here, because I was not enamored of the smaller temporary jetty scheme which he had proposed. He was fully alive to the great advantage of a breakwater on a large plan, but he believed the commerce did not then warrant it, and that the Government would not then sanction it; and that the relief he proposed was temporarily sufficient. With the chart of the Coast Survey before us we have drawn rough lines of the suggested breakwater to cover the exigencies of vessels entering the harbor from the west or around the exterior extremity of the breakwater, and to give free movement to the inshore eddy current carrying its material to the westward. (He utilized this movement of material in planning the present jetty).

My study of the great breakwaters of Europe has satisfied my judgment, and I see clearly that a capital harbor can be formed in San Pedro Bay by a breakwater in 10 fathoms of water, and that from my visits to Catalina Island building stone can be had in any quantity, if the rock of San Pedro hill is too soft, as I believe it is.

SANTA MONICA BAY.

I am not unfamiliar with Santa Monica Bay, but do not know it so well as I know San Pedro. I think the same would be said by all sailing and steamship captains on the southern seaboard.

I was along the "West Beach" as early as 1852 and 1853. In 1872 I had the following experience on the shores of Santa Monica Bay. With a loaded wagon I followed the beach from the arroyo east of Santa Monica to Point Dume. The high bluffs and cliffs came so sharply to the shore, and the arroyos there so deep that no road was practicable above high water, and I had to travel along the beach at low water. At Point Dume a very fierce westerly wind sprang up and retarded my operations so that in returning to Santa Monica I was on the beach through two low waters. I found the beach torn away along the whole shore line, and met with rocky obstructions which in some cases had been wholly uncovered by the washing away of the sands. As we approached Santa Monica the evidences of this destructive action became more and more marked, and for the last 2 or 3 miles the beach was torn away from 10 to 12 feet in depth. We met a friend from the Santa Monica arroyo driving his buggy on the inner edge of the beach of four days before, where he was 10 to 12 feet above the new beach, and he was in such a hazardous position that we had to relieve him. When I soon afterwards left Los Angeles via San Pedro there were no signs whatever of damage done to the beach there.

Afterwards when I was appealed to for a letter recommending the location of Santa Monica for a commercial wharf I related the above facts and refused to give an unqualified indorsement of the location.

During the hydrographic survey of Santa Monica Bay from Point Vincente to Point Dume by the Coast Survey, the officer commanding the surveying vessel reported that when at anchor in the vicinity of Santa Monica, with a strong westerly breeze blowing, and the inshore eddy current running to the northward along the shore, the

vessel rode to the current and her rolling in the swell falling directly on shore was so large and disagreeable that the vessel had to weigh anchor and seek a more comfortable berth.

I have had no personal experience of the winter storms at the head of Santa Monica Bay. A glance at the chart will demonstrate that it is more squarely open to the southwest swell than San Pedro.

In the winter of 1888–'89, when my party was on the Los Angeles plains, I visited the wharf at Newport to learn what effect the winter's storms had upon it. This wharf is situated 15 miles eastward of San Pedro, and is more exposed to the open sea. It is located at the head of a submarine valley, just as that at Redondo Beach in Santa Monica Bay, but the storms had not sprung a plank. (See Coast Pilot, p. 35, bottom). At the same time I understood that the end of the wharf at Redondo had been badly damaged. (Coast Pilot, p. 46).

In conclusion, I may say that a few years since I was consulted to express an opinion upon the feasibility of a harbor or wharf or anchorage in Santa Monica Bay, between Point Dume Cove and the vicinity of La Ballona. I presented what facts I then had, exhibited tracings of the original surveys, and made such explanations to the deeply interested parties that they abandoned the project.

GEORGE DAVIDSON.

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9. LETTER FROM WILLIAM HOOD, CHIEF ENGINEER SOUTHERN PACIFIC COMPANY.

SOUTHERN PACIFIC COMPANY,
San Francisco, September 14, 1892.

DEAR SIR: In accordance with your verbal request during our conference at Redondo Hotel, I herewith submit certain facts and data as used by us in considering the proposition of a deep-sea harbor to be formed by the construction of a breakwater off the southern coast of California. Inclosed are four copies of this letter, which copies I understood you to wish to have for forwarding to the other members of the Board of Engineers, U. S. Army, of which you are the chairman.

The cost of moving rock by rail to the breakwater site, shown on the blue print charts at the new wharf now building at Santa Monica, is evidently a matter for the contractors to negotiate with this or other companies. No rate has been fixed. We have used in the figures given below a rate by rail of 1 cent per ton of 2,000 pounds per mile of loaded car haul, with the following assumptions, for weight of rock to be used and the specific gravity of the rock seems to warrant them.

Also, the assumption is made of completing the work in 900 working days. Evidently the plant required would be less if the work were done more slowly and certain items of cost would be reduced thereby.

The details for various sizes of rock and portions of breakwater were worked out and then averaged, the figures below being the average result. As to quarrying, transportation, and parts of handling, we have confidence in the general accuracy of our figures as based on our experience in similar work. It is likely we have the average figures for unloading and placing in breakwater rather high, but if so it is on the safe side.

Assuming weight of cubic yard in place of quarry, 4,600 pounds; assuming a cubic yard in quarry to make average of 1⅓ cubic yards breakwater; assuming a cubic yard breakwater to weigh 1.725 short tons, or 3,450 pounds. Estimated cost per cubic yard of breakwater (portion built of the smaller rock), assuming rock taken by rail from Cold Water Cañon to new wharf, 14 miles, thence lightered to breakwater.

	Per cubic yard.
(1) Loss on investment in flotilla and unloading and placing plant at breakwater	$0.05
(2) Loss on investment in quarrying and loading plant	.045
(3) Towing from wharf to breakwater	.16
(4) Unloading from cars to lighters	.13
(5) Unloading from lighters to breakwater and placing	.19
(6) Quarrying, etc	.38
(7) Loading at quarry	.21
(8) Disposal of quarry waste	.065
(9) Freight by rail (14 miles)	.24
Contingencies and contractors' profit, 15 per cent	.22
Total cost	1.69
For the larger rock, the fifth and seventh items are assumed to be doubled, making the cost of that class of breakwater	1.87
Contingencies and contractors' profit, 15 per cent	.28
Total cost	2.15

We have considered the construction of a temporary railroad from the wharf site along the coast westerly to a proper point near Santa Inez Cañon and thence a trestle for breakwater construction purposes. Such a method would allow us to omit from above items—

	Per cubic yard.
No. 1	$0.05
No. 3	.16
No. 4	.13
	.34
Contingencies and contractors' profit, 15 per cent	.05
	.39

The net cost of such temporary railroad and trestle would be, including material recovered, about $130,000, or—

	Per cubic yard.
Breakwater	$0.06
Average extra freight, 3.2 miles of breakwater	.055
	.115
Contingencies and contractors' profit, 15 per cent	.02
	.135

$0.39 less $0.135 gives $0.255 per cubic yard breakwater saving, by building from temporary trestles, and the former figures become $1.69 less $0.255 gives $1.43 per cubic yard of breakwater, $2.15 less $0.255 gives $1.895 per cubic yard of breakwater for the respective sizes of rock in place.

We have the greatest confidence in the Cold Water Cañon quarry furnishing the proper amount of the smaller sizes for cost as shown above for the different methods of handling the rock from car to breakwater, and think it probable that the same quarry will so develop as it is worked as to furnish an abundance of the larger sized rock. If it should fail in this the larger rock can be had from Catalina Island or from any of the several mainland quarries, of which the furthest and the one absolutely certain to give suitable rock from the first working of it, is on the Declez spur railroad, at a quarry controlled by the Southern Pacific Railroad Company. The distance of this quarry from Los Angeles is 50.6 miles, or from the new wharf above referred to is 70.9 miles, or 56.9 miles farther than Cold Water Cañon quarry, which at same freight rate as before used would increase the cost of the larger rock by 98 cents per cubic yard of breakwater, making such larger rock cost in place $3.13, or $2.875 per cubic yard of breakwater on the respective plans of lightering from wharf or building from trestle along breakwater site.

The total cubic yards of the larger rock are estimated as 287,040 and this at 98 cents per cubic yard would amount to $281,299 increased cost of breakwater if larger rock could not be found in Cold Water Cañon and had to be hauled by rail from Declez spur. Very likely this large rock would, in such case, best be brought from Catalina Island.

Estimated cost of breakwater (portion built of smaller rock), assuming rock to be brought from Catalina Island and time of construction same as heretofore noted, and assumptions as to weight, etc., same as above.

	Per cubic yard.
(1) Loss on investment in flotilla and unloading and placing plant at breakwater	$0.10
(2) Loss on quarry plant investment	.045
(3) Towing from Catalina Island to breakwater	.44
(4) Unloading from lighters to breakwater and placing	.19
(5) Quarrying, etc	.38
(6) Disposing of quarry waste	.045
(7) Quarry royalty to owners of Catalina Island, at 15 cents per 2,240 pounds	.23
(8) Loading rock at quarry	.21
	1.64
Contingencies and contractors' profit, 15 per cent	.25
Total cost	1.89
For the larger rock the fourth and eighth items are assumed to be doubled, making the cost of that class of breakwater	2.04
Contingencies and contractors' profit, 15 per cent	.31
Total cost	2.35

As was stated to you at Redondo Hotel, we carefully estimated the cubic yards in the breakwater sites as proposed in the report of the Board of Engineers, U. S. Army, of which Col. G. H. Mendell was chairman, their report being contained in Ex. Doc. No. 39, Fifty-second Congress, first session, with a view to be sure that our estimate of a breakwater (built at the site we should adopt if the construction of a breakwater was in our hands) were on the same basis in every way as the estimate in the report referred to, said site being southwesterly from the town of Santa Monica, and delineated on the blue-print charts, and using the same standard section of breakwater from top down to the varying depths of all computations.

The result was as follows:

	Cubic yards.
Santa Monica site, per Ex. Doc. No. 39—	
Larger rock	282,250
Smaller rock	2,431,458
Total	2,713,708
Same site as computed by us—	
Larger rock	281,773
Smaller rock	2,427,581
Total	2,709,354

Or a difference of but 4,354 cubic yards, 0.0016 of original estimate.

San Pedro site, per Ex. Doc. No. 39—	
Both arms larger rock	268,587
Smaller rock	2,040,488
Total	2,309,075
Same site as computed by us—	
Larger rock	276,338
Smaller rock	2,001,024
Total	2,277,362

Or a difference of 31,713 cubic yards of 0.0137 of original estimate.

Site to southwest of Santa Monica, which we should adopt if building a breakwater—	
Larger rock	287,040
Smaller rock	1,901,325
Total	2,188,365

Comparing our estimate of the last site, southwest of Santa Monica, with our estimate of the two sites proposed in Ex. Doc. No. 39 and the San Pedro site is seen to have 88,997 cubic yards and the Santa Monica site 520,989 cubic yards, respectively, more than the site proposed to the southwest of Santa Monica, which difference would be increased if the figures of Ex. Doc. No. 39 were used in this comparison.

As to protected areas outside the 4½-fathom line, and included between the breakwater and the lines of exposure, the comparison is as follows, using 2½ acres as the anchorage area required on an average per vessel: At San Pedro protected area $\frac{41}{100}$ square miles, holding 105 vessels. At either site Santa Monica area $\frac{53}{100}$ square miles, holding 135 vessels. Which results are evidently useful only for purposes of general comparison.

Regarding the very short time of construction (essentially three years) assumed in making these figures, such short time involves the use or a large plant of modern appliances, and is about the progress a corporation would desire if themselves carrying out such a work, both to get the benefit of it promptly and to avoid a large accumulated interest account.

Hoping the various points have been treated of to the extent you requested, I remain,

Yours, very truly,

WILLIAM HOOD,
Chief Engineer.

Col. W. P. CRAIGHILL,
Chairman of Board of Engineers, U. S. Army.

10. Letter from William Hood, Chief Engineer Southern Pacific Company, submitting Memorandum by Commander Taylor, United States Navy.

SOUTHERN PACIFIC COMPANY,
San Francisco, September 16, 1892.

DEAR SIR: Herewith please find five copies of "Memorandum regarding a breakwater at Santa Monica," written by Lieut. Commander H. C. Taylor, U. S. Navy, Assistant U. S. Coast Survey, who made the detailed hydrographic survey of Santa Monica Bay for the U. S. Coast Survey.

I send it mainly on account of the statement as to anchorage in Santa Monica Bay, on page 109, and the statement as to the deadening of winds, on page 109.

I send five copies, with the understanding that you wish any documents bearing on the subject to be considered by your Board, to be so sent for convenience in forwarding to the several members.

Yours, very truly,

WILLIAM HOOD,
Chief Engineer.

Col. W. P. CRAIGHILL,
Chairman, Board of Engineers, U. S. Army.

MEMORANDUM REGARDING A BREAKWATER AT SANTA MONICA.

For many years the need of a harbor at Santa Monica has been apparent. Southern California is separated from the rest of the State by mountain systems and needs a port as an outlet for its products. The center of the business activity of southern California is Los Angeles. This city has grown to be too great to let it be anticipated that that center will be changed. Indeed, the fertile plain and the adjacent valleys of which it is now the depot would require such a port if Los Angeles were not there.

San Diego, whatever its qualities as a seaport, is too far to the south; it has practically no back country of sufficient importance to justify a great seaport. To the east and southeast is the peninsula of Lower California, and further in that direction lie the northern provinces of Mexico. But the ports of the Gulf of California will intercept traffic from that direction. To the north and northeast is a country of great productiveness, but that country is nearer to Los Angeles as a depot, and will find its outlet to the sea near that city. As to the harbor of San Diego, it may be said (as of all harbors) that it is not entirely satisfactory. San Francisco itself, which ranks as the greatest of bar harbors, is dangerous to enter after long continued stormy weather. From Puget Sound to Magdalena Bay, Mexico, few harbors exist, and none of great convenience. It is natural, therefore, that San Diego Harbor should be regarded of value on account of the great scarcity of harbors on the coast. It is not denied that it could be improved and its bar perhaps removed. The situation there is favorable to certain classes of engineering work, but the object of such work is not apparent when the position is not the natural sea outlet of an important tract of country.

A creek makes into the land at Wilmington and San Pedro, affording a shelter to small vessels, and expensive improvements have been carried on for several years by the Army engineers, which have slightly benefited it, but, at the best that can be hoped, it can never have the accommodations of a great harbor. A breakwater to include sufficient area of shelter could be built, but it would include some shoals and rocks inside of it, and would also receive whatever discharge of sediment there would be from the creek. This creek was used in the beginning by schooners and small craft which were sufficient for the trade of the then unsettled country. The circumstances of its location, favorable for such craft, are unfavorable for the formation of a great seaport such as the commerce of southern California now demands.

We come now to that locality which appears specially to be favored by nature, Santa Monica.

The bay of Santa Monica is, in its combination of natural features, unique on the Pacific coast. Here the depth of water increases from the beach outward with an easy and gradual slope for several miles. Here a breakwater can be established to inclose and shelter a capacious harbor, without being in water so deep as to make its construction impracticable or even difficult.

The marked feature of the Pacific coast is the steep slope of the bottom as we move from shore to seaward. This rule has few exceptions, and it results that along the entire coast a breakwater to inclose a sufficient sheltered area would have to be placed in such deep water as to be impossible of construction.

Among the few exceptions is the bay of Santa Monica. It is a remarkable coin-

cidence that the coast line in a deep curve here approaches nearer than at any other point to Los Angeles and to the fertile region of which it is the depot.

The bay of Santa Monica has, along most of its shore line, this quality of gradual deepening of the water, the bay of itself being occupied by a submarine plateau unique upon the Pacific coast. But certain portions of the shore line of the bay have other advantages in addition. The town of Santa Monica is situated at a point on the shore near a neighboring range of mountains, against or toward which blow the only winds of violence. The force of the wind blowing against a great barrier is deadened for some distance to windward of such barrier, and this probably accounts for the well-known fact that the winds at Santa Monica do not blow with violence. The swell which rolls in at this anchorage is much modified, even in the worst weather, by the effect of the large islands to seaward, and by the deep recessed position of this portion of the bay shore.

I have had considerable experience in this bay while conducting the surveys carried on there, and have laid at anchor through all seasons of the year, at and near Santa Monica, on the Government vessel which I commanded. I have never seen any weather in which a vessel could not ride at her anchors there in safety, and but few occasions when unloading at a wharf was impracticable.

If southern California needs a port, I am confident that Santa Monica is the only practicable place to construct such a port, and that southern California does urgently need a port there can be no longer any question. The mountain ranges intervening between the southern and central parts of the State are of so difficult a character for railroads that the hauling of freights across these mountains is very expensive, and the products of the southern section of the State have now become so numerous and important that the construction of a proper harbor in southern California can not longer be negleted. Also we have to regard Los Angeles no longer as a way station, but as a truly terminal point for several systems of railroads now built or to be built. With such a port close to the suburbs of Los Angeles, she would possess a most attractive route for the transportation of products from the other side of the Pacific to her own vicinity, and thence across the continent.

Is a breakwater at Santa Monica practicable, convenient, economical?

Having had, some years ago, the opinion of an able and experienced civil engineer as to the amount and quality of rock to be obtained in the hills abreast of the end of this breakwater, after his personal examination, made at my request, I am justified by the opinion in taking for granted a plentiful supply of good rock at that point. With this basis of supply close at hand, I would propose a breakwater in 40 feet depth of water, 3,000 yards long, in a straight line parallel to the shore, or with a slight angle at the center of the line, the angle being convex to seaward, as shown on the chart submitted in blue. A section of it is shown on accompanying sheet. It would be 45 feet high, 20 feet across the top, 225 feet across the bottom. Its inner face would have the natural slope of dumped rock, its seaward face would be extended until its profile would be a modified form of that at Plymouth, England. This cross section would contain 677 square yards, and the whole breakwater, 3,000 yards long, would contain 2,021,000 cubic yards. I have taken as a basis of cost the prices at which contractors have successfully delivered stone at the breakwater now building by the United States engineers at Rockport, Mass., being an average for two years of 65 cents per ton, or allowing two tons per cubic yard, $1.30 per cubic yard. The difficulty and expense are, however, much greater in delivering rock there than they would be at Santa Monica. At the latter the hills which contain the rock are at a distance of only 2,300 yards, across water of moderate depths, to the nearest end of the breakwater. A tramway on piles can be constructed easily and cheaply to connect the two, and the quarries can be located in the hills at an elevation sufficient to cause gravity to move the loaded cars down, and bring back by their weight the empty cars. It is reasonable, therefore, to regard this estimate of $1.30 per cubic yard as being largely in excess of the probable cost. I have, however, added to this amount 33⅓ per cent, to cover the installation of working plant, the opening of quarry, the building of tramway, and all contingencies, as follows:

To excavate 2,100,000 cubic yards and deliver same in place, at $1.30 per cubic yard	$2,730,000
To install plant, etc., and for all contingencies, 33⅓ per cent	910,000
Total	3,640,000

It is my belief that this sum is much in excess, and that a breakwater can be built for $2,500,000.

I will mention here that a smaller breakwater could be placed in 30 feet depth of water, 2,000 yards long, and of similar though smaller section than the above, at a cost of $1,800,000, and would afford a good shelter. It would not, however, possess the qualities of a great port, either in itself or in its powers of expansion for future

needs, and it is a great port which southern California now demands for its growing trade.

Under the shelter of 3,000 yards breakwater, with wharves properly planned and constructed, 130 ships of 300 feet length could lie alongside the wharves and leave space there and in the anchorage ground between them and the breakwater for 200 more vessels of various sizes. A breakwater 2,000 yards long in 30 feet depth of water would form an excellent shelter, but I would recommend one 3,000 yards long in 40 feet depth of water as the wiser project of the two. It would, in fact, be a perfect project, leaving nothing to be chanced. In this depth a breakwater will be as distant from shore as will ever be necessary. Greater area of shelter, when desired, may be secured by extensions of the breakwater on its own line parallel to the shore.

Finally, I submit a plan of such breakwater, shown in blue print on the chart. I submit also a section of same, showing details of proposed construction.

Respectfully,

H. C. TAYLOR.

NOTE.—The drawings, etc., referred to by Commander Taylor have been mislaid, the foregoing memorandum having been written several years ag

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11. LETTER FROM W. D. GELETTE, SUBMITTED BY WILLIAM HOOD, CHIEF ENGINEER SOUTHERN PACIFIC COMPANY.

SOUTHERN PACIFIC COMPANY.

DEAR SIR: In accordance with your instructions I have made careful search in the vicinity of Santa Monica to ascertain if there existed in that neighborhood any deposits of rock suitable for the construction of an ocean breakwater.

The examination extended from the Cold Water Cañon (A)* in the Cahuenga Range, about 8 miles eastward, to the Malibu Cañon (F) on the coast about 12 miles west of the town of Santa Monica; all of the principal cañons and some of the smaller ones were examined.

From Cold Water Cañon westward to Santa Monica Cañon, nothing of value was found, the formation being slate and shale much broken, and sandrock of poor quality. In the west fork of Santa Monica Cañon, known as Rustic Cañon (C) and in the Santa Inez Cañon (D) there is an extensive deposit of coarse conglomerate of considerable strength but doubtful durability. This occurs about 2 miles from the mouth of these cañons and is difficult of access, owing to the narrow, crooked character of the cañons.

In the mouth of the Topanga Cañon (E) about 6 miles west of Santa Monica, there occurs a ledge of hard brittle sand rock which might possibly afford a limited quantity of rock suitable for the purpose desired.

A face of 250 or 300 feet long might be obtained, the ledge shows at intervals along the hillside 100 feet or more in height. Access to the point by rail would be along the coast and somewhat expensive owing to existence of steep hill points, the foot of which are washed by extreme high tides.

From the Topanga westward to the Malibu (F) there is a large amount of sand rock along the coast and in the smaller cañons. In the Malibu, the cañon sides are sand rock deposits of great extent but generally of inferior quality.

In all this examination no deposits were found of as good quality as those of Cold Water Cañon.

The alleged granite on the Jones and Baker property (B) near the Soldiers' Home, proved to be sand rock of the poorest quality.

Respectfully yours,

W. D. GELETTE.

WM. WOOD, Esq.,
Chief Engineer, Southern Pacific Company.

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12. LETTER FROM WILLIAM HOOD, CHIEF ENGINEER SOUTHERN PACIFIC COMPANY, SUBMITTING STATEMENT OF MERCHANTS.

SOUTHERN PACIFIC COMPANY.
San Francisco, September 16, 1892.

DEAR SIR: Inclosed please find original (and four copies) of statement addressed to your board by prominent wholesale merchants doing business in Los Angeles. This

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* Map omitted.

has been sent to me to forward to you. I have attached the statement of the standing of the firms, taken from Bradstreet's Mercantile Agency publication.

The documents are respectfully submitted as bearing on the commercial side of the question, as viewed by those signing the communication.

Very truly yours,

WILLIAM HOOD,
Chief Engineer.

Col. W. P. CRAIGHILL,
Chairman Board of Engineers, U. S. Army.

LOS ANGELES, CAL., *Sepetmber 12, 1892.*

GENTLEMEN: We, the undersigned wholesale merchants, doing business in Los Angeles, realizing the need of a safe and commodious harbor where deep-sea vessels and cars can be brought together, thus reducing the cost of handling freight to a minimum, beg of you to recognize the importance of having such located at the point nearest to Los Angeles, so that time as well as cost can be reduced. Viewing the situation from a commercial standpoint we are of the opinion that Santa Monica offers to the merchant the advantages sought for, and we respectfully submit this as our opinion.

Union Hardware and Metal Company per J. M. Johnston, President, hardware; Western Commercial Company per F. L. Moore, President, building material; J. D. Hooker and Company, per Hooker, pipe manufacturers; Capitol Milling Company, per Lowe, President, flour mill; K. Cohn and Company, hides and wool; Harrison and Dickson, per George E. Dickson, wooden and willow ware; Haas, Baruch and Company, groceries; Percival and Chambers, hardware; Stern Brothers, dry goods; Jacoby Brothers, clothiers, boots, and shoes; H. J. Woolacott, liquors; John Bryson, sr., banker; California Hardware Company, per T. J. Weldon, vice-president, hardware; H. and N. Siegel, hatters; Mullen, Bluett & Company, clothing; P. H. Matthews, paints and oil; Meyberg Brothers, crockery and glassware; C. W. Hicks, produce and seeds; M. A. Newmark & Company, groceries; S. W. Luitweiler, farm implements; Kingsbaker Brothers, cigars; H. Bartning, tea, coffee, and spice; Germain Fruit Company, per E. Germain, president, fruits; Southern California Orange Company, per F. J. Thayer, secretary, fruits; M. Levy & Company, per Levy, liquors; Pacific Crockery & Tinware Company, per R. Heinaman, secretary, crockery and tinware; Hawley, King, and Company, per F. W. King, farm implements; W. W. Montague and Company, per L. Kimble, manager, stoves, tinware, iron; Howell and Craig, groceries; Globe Clothing Company, clothing; Niles Pease, furniture; Bailey and Barker Brothers, furniture; Eckstrom and Strasburg, wall paper and paints; Frank, Grey & Company, dry goods; Cass and Smurr Stove Company, per J. Smurr, stoves and crockery; Hoffman & Weller, hardware; Simpson-Montgomery Fruit Company, per Simpson, fruits; Blake, Moffit & Towne, per J. K. Moffit, paper; Prince Dyer Company, brokers; Steinike & Bruning, liquors and cigars; Phil Hirschfeld & Company, stationery; Los Angeles Furniture Company, per E. P. Johnson, vice-president, furniture; F. W. Braun & Company, drugs; Los Angeles Wine Company, wine; Pironi & Slatri, wine; Louis Lewin, wine; Stoll & Thayer Company, stationery; D. Desmond, hatter; Mathews and Bosbyshell Company, per Newell Mathews, president, agricultural implements; A. Hamburger & Sons, dry goods, boots, and shoes; E. Laventhal & Sons, liquors; C. J. Shepherd, fruits; B. Sanders, liquors and cigars; Baker Iron Works, per Fred. L. Baker, secretary, foundry; Los Angeles Farming and Milling Company, per I. N. Van Nuys, president, flour mill; Pioneer Roll Paper Company, per W. C. Hunt, manager, paper; Webb & Paterson, brokers; Harris & Frank, clothing and furnishing goods; Fisher and Boyd Piano Company, musical instruments; Gardner & Zellner, musical instruments; George S. Marygold, musical instruments; Gibson & Tyler Company, per William Gibson, president, boots and shoes; Anderson & Chanslor, groceries: F. E. Browne, stoves and tinware; Llewellyn Brothers, per William Llewellyn, foundry; Los Angeles Wool Pulling Factory, per J. Cook, wool and hides; Sunset Wine Company, wines and cigars; Kiefer & Company, liquors and cigars; Los Angeles Cracker Company, per L. Winter, crackers; South California Cracker Company, per P. J. Jacoby,

crackers; Los Angeles Soap Company, by J. A. Forthmann, soap; California Vinegar and Pickle Works, per A. Schelling, vinegar; Los Angeles Coffee and Spice Mills, per Stoll and Stroble, coffees and teas; Long, Whitney and Co., per C. H. Long, butter and cheese; C. C. Reynolds, of Harper and Reynolds Company, hardware; I. B. Newton, of Harper and Reynolds Company, hardware; Stanley and Henry, butter, cheese, etc.; John Wigmore, iron and hardwood; H. F. Vollmer and Company, crockery; T. A. Eagleson, furnishing goods; J. M. Hale and Company, dry goods; J. C. Harvey, agent Standard Oil Company, lead and oils.

Col. W. P. CRAIGHILL, U. S. A.
Lieut. Col. H. M. ROBERT, U. S. A.
Lieut. Col. P. C. HAINS, U. S. A.
Maj. C. W. RAYMOND, U. S. A.
Maj. T. H. HANDBURY, U. S. A.

Classified summary of Bradstreet's Commercial Agency rating of the individuals and firms subscribing to the attached communication to a board of the United States Engineers (Col. William P. Craighill, chairman) appointed to examine and report upon harbor works in the vicinity of Los Angeles, Cal.

Number of firms.	How listed.	Class of credit.	For what amount.
1	G Aa	First class	$1,000,000 or above.
2	Aa	....do	500,000 to $1,000,000
1	H A	No. 2	500,000 1,000,000
2	J A	First class	400,000 500,000
6	A	....do	150,000 500,000
2	K A	....do	300,000 400,000
3	L A	....do	250,000 300,000
4	N A	....do	150,000 200,000
3	O B	....do	100,000 150,000
5	B	....do	35,000 150,000
6	T C	....do	10,000 20,000
2	P B	....do	75,000 100,000
4	Q B	....do	50,000 70,000
2	R B	....do	35,000 50,000
1	S D	No. 2	30 000 35,000
6	S C	First class	20,000 35,000
7	C	....do	5,000 35,000
2	U C	....do	5,000 10,000
1	V D	....do	3,000 5,000
3	D	....do	1,000 5,000
1	E	....do	Up to $10,000.
19	Most of them listed by Bradstreet, but not rated.		

Total, 83.

Aggregate wealth and credit 64 firms rated as above, from $7,300,000 to $12,950,000. Estimating 19 firms not listed by Bradstreet at R B, the aggregate would be anywhere from $9,000,000 to $14,000,000.

SAN FRANCISCO, *September 16, 1892.*

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13. LETTERS FROM T. B. BURNETT, GENERAL MANAGER LOS ANGELES TERMINAL RAILWAY COMPANY, INCLOSING PETITIONS.

LOS ANGELES TERMINAL RAILWAY COMPANY, GENERAL OFFICES,
Los Angeles, Cal., October 17, 1892.

SIR: I beg to inclose you some petitions which have been gotten up here in favor of locating the Government deep-sea harbor at San Pedro. There are some others yet which will be forwarded to you as quickly as they come in.

Very respectfully,

T. B. BURNETT,
General Manager.

Col. W. P. CRAIGHILL,
Corps U. S. Engineers.

To the honorable Board of United States Engineers for the location of a deep-water harbor on the coast of southern California:

GENTLEMEN: Whereas, from the experience of shippers and navigators and the investigations of engineers extending over the period since the discovery of California to the present time, as well as by the evidence recently submitted to the consideration of your honorable body during its recent session in the city of Los Angeles, it has been demonstrated that San Pedro Bay possesses more natural advantages than any other point under consideration for the location of a deep-water harbor, whose construction is contemplated by the Government to serve the commercial necessities of this section, and

Whereas, the objections to the location of the proposed harbor at San Pedro Bay are chiefly made by the Southern Pacific Company of Kentucky, a corporation which has until within the last year enjoyed a monopoly of the natural advantages and artificial facilities provided by Government expenditures at San Pedro Bay, and has only ceased to use such harbor as its exclusive and sole harbor on the southern California coast since the advent upon its shores of a new and competing line of railway within the past twelve months; and

Whereas, by reason of the ownership by the city of San Pedro and various private parties of considerable frontages upon San Pedro Harbor as it now exists, and as it will be extended by the proposed improvements to secure deep-water anchorage, ample facilities will be afforded all other competing lines of carriers who may desire to avail themselves of a deep-water harbor at San Pedro Bay, and

Whereas, by reason of its present location and the ownership by it of tracts of land and a right of way extending along the whole frontage of the harbor as proposed at Santa Monica, the said Southern Pacific Company will be the chief beneficiary of any Government improvements which may be made at that point and no rival lines of railway can ever avail themselves of the advantages of a deep-water harbor at that point on anything like equal and competing terms with the said Southern Pacific Company; now

Therefore, we, the undersigned producers and shippers, business men and citizens of Los Angeles county and the territory which will be contributory to and benefited by the proposed deep-water harbor upon the coast of southern California, actuated only by the earnest desire of securing the "greatest good to the greatest number" do respectfully petition your honorable body for the reasons above set forth, and presented to you at your late session in the city of Los Angeles, to locate the said proposed deep-water harbor upon the bay of San Pedro, and we believe such location will be to the best interests of our entire people.

Respectfully,

Crescent Coal Company, per Charles A. Marriner, coal dealers of Los Angeles; Black Diamond Coal Company, C. E. Trout, secretary; E. M. Frazee; E. Bouton, capitalist; Hickey & Kellam, agents Caledonian Coal Company; L. J. Rose & Co. (limited), wine growers; E. C. Bichowsky, attorney in fact; C. Ducommon, hardware merchant; Phil. Hirschfeld, wholesale stationer; E. Laventhal; E. B. Laventhal, wholesale liquor dealer; I. Laventhal; William O'Reilly, boots and shoes; W. C. Furrey, hardware; Union Iron Works; Leon Levy, produce merchant; California Wire Works, wire manufacturers; Fairbanks Scale Company, scale manufacturers; Hobbs & Richardson, agricultural implements; Prince, Dyer & Co., wholesale grocers; Kingslenke & Bros., wholesale cigars; E. E. Jones & Co., shoe findings; Cohn Bros., clothing; H. W. Frank & Co., clothing; E. C. Denio, attorney at law; E. E. Barden, boots and shoes; The Day & Fisher Music Company; J. T. Fitzgerald, music warerooms; S. Conradi, jeweler; Montgomery Bros., jewelers; A. S. Joseph, jeweler; Bartlett Bros., music and jewelry, pianos; Stanley & Henry, wholesale produce and commission; J. H. Reynolds, carriages; C. Seligman, grocer; R. M. Senering, broker; George S. Hassen, commission and shipper; P. H. Mathews, paints and oils; Frank Phillips; N. Weil & Co.; California Fish Company; Los Angeles Fish Company; United States Fishing Company; C. W. Hicks, seed merchant; Aulds & Walton, commission merchants; Edward D. Silent, real estate and insurance; Tufts-Lyon Arms Company, guns and sporting goods; W. G. Joorems, merchant tailor; Fred. A. Walton, insurance and commission broker; The Pirtle Real Estate and Trust Company, by John A. Pirtle, president; A. F. Mills, commission broker; Atlas Milling Company.

To the honorable Board of United States Engineers for the location of a deep-water harbor on the coast of southern California:

GENTLEMEN: Whereas, from the experience of shippers and navigators and the investigations of engineers extending over the period since the discovery of California to the present time, as well as by the evidence recently submitted to the consideration of your honorable body during its recent session in the city of Los Angeles, it has been demonstrated that San Pedro Bay possesses more natural advantages than any other point under consideration for the location of a deep-water harbor, whose construction is contemplated by the Government to serve the commercial necessities of this section; and

Whereas, the objections to the location of the proposed harbor at San Pedro Bay are chiefly made by the Southern Pacific Company of Kentucky, a corporation which has until within the last year enjoyed a monopoly of the natural advantages and artificial facilities provided by Government expenditures at San Pedro Bay, and has only ceased to use such harbor as its exclusive and sole harbor on the southern California coast since the advent upon its shores of a new and competing line of railway within the past twelve months; and

Whereas, by reason of the ownership by the city of San Pedro and various private parties of considerable frontages upon San Pedro Harbor as it now exists, and as it will be extended by the proposed improvements to secure deep-water anchorage, ample facilities will be afforded all other competing lines of carriers who may desire to avail themselves of a deep-water harbor at San Pedro Bay; and

Whereas, by reason of its present location and the ownership by it of tracts of land and a right of way extending along the whole frontage of the harbor, as propose at Santa Monica, the said Southern Pacific Company will be the chief beneficiary of any Government improvements which may be made at that point, and no rival lines of railway can ever avail themselves of the advantages of a deep-water harbor at that point on anything like equal and competing terms with the said Southern Pacific Company; now

Therefore, we, the undersigned producers and shippers, business men and citizens of Los Angeles County and the territory which will be contributory to and benefited by the proposed deep-water harbor upon the coast of southern California, actuated only by the earnest desire of securing the "greatest good to the greatest number," do respectfully petition your honorable body, for the reasons above set forth, and presented to you at your late session in the city of Los Angeles, to locate the said proposed deep-water harbor upon the bay of San Pedro, and we believe such location will be to the best interests of our entire people.

Respectfully,

George H. Peck, jr., banking; E. Norman, druggist; S. C. Wilhite, lumberman; A. F. Hult, city marshal; A. Piltz, butcher; G. Falk, sea captain; A. P. Jensen, captain steamer *Novara*; A. F. Quigley, ship builder; E. C. Wrist, ship master; F. M. Johnson, master steamer *Rival;* E. N. Hardwick, master schooner *Huenema;* A. Eisen, merchant; G. M. Fagerlund, master steamer *Alcatraz;* Capt. R. A. Elson; Edelman & Co., merchants; J. R. Spring, contractor; J. A. Wallace, accountant; C. Chlemmetson, seaman; Reinhart Pettersen, master schooner *Guide;* R. Hillyen, master schooner *F. Ellis;* E. —— ship builder; John Hamilton, captain steamer *Pasoadena;* L. W. Blinn, lumber dealer; E. Lockett, lumber dealer; John H. F. Peck, merchant, Los Angeles; James W. Hellman, hardware; W. C. Furrey, hardware; Kerckhoff-Cuzner Mill and Lumber Company, by Wm. G. Kerckhoff, lumber and shipping.

To the honorable Board of United States Engineers for the location of a deep-water harbor on the coast of southern California:

GENTLEMEN: Whereas, from the experience of shippers and navigators and the investigations of engineers, extending over the period since the discovery of California to the present time, as well as by the evidence recently submitted to the consideration of your honorable body during its recent session in the city of Los Angeles, it has been demonstrated that San Pedro Bay possesses more natural advantages than any other point under consideration for the location of the deep-water harbor whose construction is contemplated by the Government to serve the commercial necessities of this section; and

Whereas, the objections to the location of the proposed harbor at San Pedro Bay are chiefly made by the Southern Pacific Company of Kentucky, a corporation which has until within the last year enjoyed a monopoly of the natural advantages and artificial facilities provided by Government expenditures at San Pedro Bay, and has

only ceased to use such harbor as its exclusive and sole harbor on the southern California coast since the advent upon its shores of a new and competing line of railway within the past twelve months; and

Whereas, by reason of the ownership by the city of San Pedro and various private parties of considerable frontages upon San Pedro Harbor as it now exists, and as it will be extended by the proposed improvements to secure deep-water anchorage, ample facilities will be afforded all other competing lines of carriers who may desire to avail themselves of a deep-water harbor at San Pedro Bay, and

Whereas, by reason of its present location and the ownership by it of tracts of land and a right of way extending along the whole frontage of the harbor as proposed at Santa Monica, the said Southern Pacific Company will be the chief beneficiary of any Government improvements which may be made at that point and no rival lines of railway can ever avail themselves of the advantages of a deep-water harbor at that point on anything like equal and competing terms with the said Southern Pacific Company; now

Therefore, we, the undersigned producers, and shippers, business men and citizens of Los Angeles County and the territory which will be contributory to and benefited by the proposed deep-water harbor upon the coast of southern California, actuated only by the earnest desire of securing the "greatest good to the greatest number" do respectfully petition your honorable body for the reasons above set forth, and presented to you at your late session in the city of Los Angeles, to locate the said proposed deep-water harbor upon the bay of San Pedro, and we believe such location will be to the best interests of our entire people.

Respectfully,

P. M. Green, president First National Bank, Pasadena; Frank C. Bolt, president San Gabriel Valley Bank; T. P. Lukens, cashier Pasadena National Bank; A. H. Conger, cashier First National Bank, ——— ———, real estate and insurance; W. H. Wiley, liveryman; N. White, plumbing, tinning, and house furnishing; H. J. Vail, general merchandise; J. L. Underwood, merchant; E. C. Griffith, hardware; R. Williams, business agent; Bayard F. Smith, New York Life Insurance; B. F. Bull, vice-president First National Bank; S. Washburn, vice-president San Gabriel Bank; Wesley Bunnell, clerk; J. W. Wood, druggist; James Smith, merchant; J. P. Nelson, fruit grower; John McDonald, real estate broker; M. D. Painter, proprietor Painter Hotel; Wm. Menner & Co., furniture dealers; Alex. C. Blair, shoe dealer; P. P. Bonham, plumbing; W. L. Hubbard, cotton manufacturer; J. H. Woodworth, real estate; Wetherly C. Keyser, boots and shoes; George A. Greely, liveryman; Bangham Bros., coal and wood dealers; W. D. Hammell, hay, grain, and coal; Conrad and Hotaling, merchants; Stevens Hardware Co., hardware; Randall and Twombly, merchants; G. E. Prosser, real estate; T. J. Rigg, druggist; D. Confer, fruit dealer; George F. Schmidt, merchant; George F. Foster, fruit grower, real estate, laborer; Richard J. Mohr, physician; Frank H. Vallette, builder; Edward T. Howe, real estate; W. B. Loughery, merchant; J. C. Fraser, physician; J. F. Church, real estate and insurance; M. E. Wood, fruit grower; Lyman Allen, real estate; Irvin N. Frasse, physician; E. F. Brown, merchant; T. F. McGarry, merchant; Dr. P. W. Eliot, physician; John Adams; C. H. Keyes, president Throop University; A. J. McClatchie, professor biology Throop University; T. S. C. Lowe, per T., now building railroad to top of Mount Wilson; Thaddeus Lowe, jr., now building railroad to top of Mount Wilson; J. R. Toole, fruit dealer; Otto Freeman, rancher; T. A. Smith, rancher; John R. Reynolds, rancher; Harold S. Channing, rancher; C. E. Averill, merchant; S. E. Allin, fruit raiser; H. W. Magee, fruit raiser; E. S. Lee, manfacturer; J. C. Rush, rancher; J. H. Hicken; E. Groenendyke; W. H. Rippey, rancher; S. L. Tuttle, manufacturer; D. Galbraith, banker; Aug. Mayer, civil engineer; Peter Steil, hotel C.; A. C. Hess; J. F. Whidon; Park Nursery Co., Wm. N. Campbell, secretary; J. M. McClure, merchant; S. P. Swearingen, physician; E. G. Parke, in charge of Raymond Hotel; John Lowe, fruit grower; D. R. M. Thompson, mechanic; J. D. Yocrun, fruit grower; A. M. Elson, merchant; W. J. Barcus, fruit grower; E. S. Frost, fruit grower; A. Dorn, fruit grower; Joseph Wolf, fruit grower; W. T. Grimes; G. W. Dyer, fruit grower; George Davidson, fruit grower; James Barker, fruit grower; G. C. Elson, fruit grower; George F. Kernaghan; F. L. Jones, merchant; H. G. Wilson, farmer; J. J. Allen, contractor; John H. Walbridge, broker, etc., Pasadena; H. S. Rollins, attorney; J. S. Mills, Pasadena Brick Co.

To the honorable Board of United States Engineers for the location of a deep-water harbor on the coast of Southern California:

GENTLEMEN: Whereas, from the experience of shippers and navigators and the investigations of engineers, extending over the period since the discovery of California to the present time, as well as by the evidence recently submitted to the consideration of your honorable body during its recent session in the city of Los Angeles, it has been demonstrated that San Pedro Bay possesses more natural advantages than any other point under consideration for the location of the deep-water harbor whose construction is contemplated by the Government to serve the commercial necessities of this sec tion; and

Whereas, the objections to the location of the proposed harbor at San Pedro Bay are chiefly made by the Southern Pacific Company of Kentucky, a corporation which has, until within the last year, enjoyed a monopoly of the natural advantages and artificial facilities provided by Government expenditures at San Pedro Bay, and has only ceased to use such harbor as its exclusive and sole harbor on the southern California coast since the advent upon its shores of a new and competing line of railway within the past twelve months; and

Whereas, by reason of the ownership by the city of San Pedro and various private parties of considerable frontages upon San Pedro Harbor as it now exists, and as it will be extended by the proposed improvements to secure deep-water anchorage, ample facilities will be afforded all other competing lines of carriers who may desire to avail themselves of a deep-water harbor at San Pedro Bay; and

Whereas, by reason of its present location and the ownership by it of tracts of land and a right of way extending along the whole frontage of the harbor as proposed at Santa Monica, the said Southern Pacific Company will be the chief beneficiary of any Government improvements which may be made at that point and no rival lines of railway can ever avail themselves of the advantages of a deep-water harbor at that point on anything like equal and competing terms with the said Southern Pacific Company, now;

Therefore, we, the undersigned producers and shippers, business men, and citizens of Los Angeles County and the territory which will be contributory to and benefited by the proposed deep-water harbor upon the coast of Southern California, actuated only by the earnest desire of securing the "greatest good to the greatest number," do respectfully petition your honorable body for the reasons above set forth and presented to you at your late session in the city of Los Angeles, to locate the said proposed deep-water harbor upon the bay of San Pedro, and we believe such location will be to the best interests of our entire people.

Respectfully,

M. C. Holman, druggist; E. A. Benefield, confectioner; W. C. Bowers, grocer, etc.; Rosecrans & Tracy; Ed. R. Braley & Co., fruit dealers; H. M. Coate, boot and shoe store; A. Walton, confectioner; A. B. Boswell, grocer; Louis A. Bailey, hardware merchant; John Sutcliffe, miller; J. S. John, coal and wood dealer; F. L. Dames, meat merchant; E. R. Brown, jeweler; J. H. Smith, hardware and paint; A. W. Dillingham, dentist; J. L. Fetterman, liveryman; R. B. Vanderberg, blacksmith; H. M. Bailey, tinsmith; W. P. Wilson, landlord; B. F. Bryan, druggist; W. W. Lowe, insurance and vice-president board of trade; J. N. Williams, harness merchant; F. G. Butler, grain shipper; Spears & Evey, liverymen; Charles E. Mitchell, dairyman; C. Elikan, merchant and grain shipper; G. M. Walker, retired; J. H. Darby, hotel keeper; Thomas Stovell, lumber merchant.

We, the undersigned citizens and tax-payers of San Pedro and Port of Los Angeles and citizens of Los Angeles County, knowing that the volume of business which is transacted in our port demands a better harbor and a more liberal consideration from Congress. As the appropriation allowed by Congress recently is inadequate to attain the ends desired, the major portion will be used for finishing the jetties designed by the Government engineers as it has been believed by the engineers in charge that a greater depth of water can be secured and maintained.

We therefore consider it is for the best interests of San Pedro and the city of Los Angeles and county of Los Angeles, and all of southern California to have further work done, and we therefore petition the Government to appropriate the sum of $500,000, or such sums as the Government engineer in charge may deem necessary, for the purpose of securing the requisite depth of water in our harbor that the Government engineers reported can be secured and maintained.

W. C. Patterson & Co., wholesale produce dealers; M. A. Newmark & Co., grocers; Gregory Perkins, jr.; Tufts-Lyon Arms Co.; The City Bank,

by A. D. Child, president; Merriam & Co.; Myberg Bros.; Hewett & Craig, wholesale grocers; Bishop and Company, manufacturing confectioners; Patrick Bros., wholesale boots and shoes; Mathews Bros., wholesale commission merchants; Stanley & Henry, wholesale produce dealers; Blake, Moffitt & Towne, wholesale paper dealers; Phillips Bros., wholesale flour dealers; Kingslenke Bros., wholesale cigars; H. Bartwing, wholesale coffee and teas; Union Hardware and Metal Company, wholesale hardware; Haas, Baruch & Co., wholesale grocers; Pacific Crockery and Tinware Company, by R. Heinam, secretary, wholesale crockery and tinware; Hayden and Lewis Company, wholesale saddlery; Pioneer Roll Paper Company, W. G. Hunt, manager, wholesale paper; Hellman, Waldick & Co., stationers; Jacoby Bros., wholesale and retail clothing, etc.; R. R. Haine, manager Pacific Postal Telegraph Company; J. C. Sherer, chief operator Postal Telegraph Company; H. W. Latham, attorney at law; P. J. Hummel, A. M. Petty, J. S. English, F. Martin, M. M. Barnet; H. C. Sigler, president Southern California Investment Company; A. M. Edelman, architect; John McIlvoil; W. C. Furry, hardware; James W. Hellman, hardware; B. S. Weston, S. C. Weston, A. Laubersheimer, Joseph P. Sylva, H. Van Valkenburg, J. H. Tullem, George Hinds; James Dodson, president board of trustees, city of San Pedro; Rudolf Axman, superintendent El Toro Improvement Company; George H. Peck, jr., cashier Bank of San Pedro; J. A. Weldt, merchant; J. F. C. Johnson, justice of the peace; W. S. Hobbs, attorney at law; Geo. N. Shaw, lightkeeper; A. D. Proch, hotel keeper; Henry Baly, city clerk; A. Piltz, butcher; E. C. Huntington, merchant; E. Norman, druggist; J. D. Connor, school-teacher; San Pedro Lumber Company; L. W. Blinn; T. B. Burnett, general manager Los Angeles Terminal Railway Company; A. Eisen, ship chandler; N. Lewis Bell, manager Fulton Engine Works; S. J. Keese (Keese & Hall), Los Angeles; J. H. Bryson, Riverside, Cal.; Capitol Milling Company, flour mill; Geo. M. Smitt; M. S. Baker, Baker Iron Works; Fosuni Iron Works, J. F. Fosuni, president; S. A. Widney, preacher, merchant, etc.; Carl I. Crew, 236 South Olive, Los Angeles; A. L. Pomeroy, real estate; J. R. Dobbins, taxpayer; L. T. Garnsey, taxpayer; R. R. Brown, taxpayer; Justus Brockway, taxpayer; S. C. Dodge, taxpayer, Santa Monica; H. W. Mills, real estate dealer; Lyman Stewart, oil producer; W. A. Spalding, assistant editor Times; J. E. McComas, State senator; John Wasson, editor Pomona Times; H. Z. Osborne, editor Evening Express; J. Mills Davies, business manager Evening Express Company; Hancock Banning, coal importer; J. B. Banning; F. M. Reiche, merchant; W. Parris, Los Angeles agent Pacific Coast Steamship Company; Merick Reynolds, taxpayer; Southern California Investment Company; W. C. Batcheller, secretary Fruitland Levee District; L. F. Scott; John Koster, restaurant and bakery, Los Angeles; A. Workman; Cass and Smurr Stove Co., N. Cass, secretary; John Haynes, attorney at law; Enoch Knight, attorney at law; W. L. Carter; W. A. Taylor, merchandise broker; O. C. Hinman; B. Q. Burge; Isaac Fellows, M. D.; F. P. Sigler; A. M. Carpenter, attorney at law; F. Berkow, merchant; Henry J. A. Stuhr, merchant; J. Schodu, merchant; J. M. Johnston, merchant; W. H. Perry Lumber and Mill Company; Farmers' and Merchants' Bank of Los Angeles, by Herman W. Hellman, vice-president; Wilmington Transportation Company, by William Banning, president; E. D. W. Weldt, pilot of this port; F. L. Schilling, agent Kerckhoff-Curzon Mill and Lumber Company; H. J. Muller, agent W. H. Perry Lumber and Mill Company; F. E. Dornfeld, master steamship *Hermosa;* R. R. Blieets, agent San Pedro Lumber Company; Thos. Hughes & Company Milling Company; Wm. H. Leishman, Ocean Planing Mill; J. W. Buckley, lumberman; J. C. Gregg, superintendent San Pedro Lumber Company; Carl Jorgensen, carpenter; Peter L. Iversen, shipbuilder; W. Jorgensen, master bkt. *Marion;* C. P. Hasselbalch, shipbuilder; Charles Powers, lumberman; H. D. Williams, bookkeeper; H. Stamford, agent Southern Pacific Company; William L. Crain, agent Wells, Fargo & Company's Express; Frank H. Oswald, clerk Southern Pacific Company; C. C. Niles, clerk Southern Pacific Company; Edward Mahar, agent Wilmington Transportation Company; George J. Carey, with this transportation company; J. F. Anderson, pilot of the port; W. C. Downing; C. E. Walling; H. Muller, carpenter; William Millen, bridge builder; L. A. Wilmot, carpenter; E. H. Trefether, master steamship *Warrior;* W. G. Halstead, superintendent Wilmington Transportation

Company; S. M. Barton, city trustee; J. H. Leiman, business manager Times; R. A. Olson, A. R. Barton, laborer; R. Hillyer, master mariner of port; L. Wade, furniture dealer; William Rosenthal, merchant; M. Levy, clothing dealer; Sam. Bennett, clerk and taxpayer; J. Crossfield, bridge builder; John W. Aspe, master schooner *Bangor;* N. O. Anderson, merchant; A. G. Barton, postmaster; B. C. Sweet, city recorder; A. Heitermann, taxpayer; Thos. Olson, master mariner of port; Chas. J. W. Sjoberg, inspector of customs; Samuel McClure, lumber inspector; Frank O. Donnell, marine engineer; H. A. Cooker, tax payer; J. DeBarth Shorb, San Gabriel Wine Company, wine merchant and shipper.

LOS ANGELES TERMINAL RAILWAY COMPANY, GENERAL OFFICES,
Los Angeles, Cal., October 20, 1892.

DEAR SIR: I hand you herewith another petition similar to those sent you a few days ago with reference to the establishment of a deep-water harbor at San Pedro.

I regret very much my absence in the east at the time your Board held their meeting at this place, but the evidence that was put before you seemed to me quite satisfactory. The only additional suggestion I would make to what was presented to you at that time is the fact that for a comparatively small expenditure the inner harbor at San Pedro can be made a 20 or 22 foot harbor, adding a very great amount of harbor frontage to what can be obtained in the establishing of a harbor at any other point. I am sure that this fact will not be overlooked by your Board, nor the added fact that from a commercial point of view it is a matter that should precede the construction of a deep-sea harbor, because it can be done in so much less time and at such a small proportionate expense.

Very respectfully,

T. B. BURNETT.

Col. WM. P. CRAIGHILL,
Corps of Engineers, U. S. A.

To the honorable Board of United States Engineers for the location of a deep-water harbor on the coast of southern California:

GENTLEMEN: Whereas, from the experience of shippers and navigators and the investigations of engineers extending over the period since the discovery of California to the present time as well as by the evidence recently submitted to the consideration of your honorable body during its recent session in the city of Los Angeles, it has been demonstrated that San Pedro Bay possesses more natural advantages than any other point under consideration for the location of the deep-water harbor whose construction is contemplated by the Government to serve the commercial necessities of this section; and

Whereas the objections to the location of the proposed harbor at San Pedro Bay are chiefly made by the Southern Pacific Company of Kentucky, a corporation which has until within the last year enjoyed a monopoly of the natural advantages and artificial facilities provided by Government expenditures at San Pedro Bay, and has only ceased to use such harbor as its exclusive and sole harbor on the southern California coast since the advent upon its shores of a new and competing line of railway within the past 12 months; and

Whereas, by reason of the ownership by the city of San Pedro and various private parties of considerable frontages upon San Pedro Harbor as it now exists and as it will be extended by the proposed improvements to secure deep-water anchorage, ample facilities will be afforded all other competing lines of carriers who may desire to avail themselves of a deep-water harbor at San Pedro Bay; and

Whereas, by reason of its present location and the ownership by it of tracts of land and a right of way extending along the whole frontage of the harbor as proposed at Santa Monica, the said Southern Pacific Company will be the chief beneficiary of any Government improvements which may be made at that point and no rival lines of railway can ever avail themselves of the advantages of a deep-water harbor at that point on anything like equal and competing terms with the said Southern Pacific Company; now,

Therefore, we, the undersigned producers and shippers, business men and citizens, of Los Angeles County and the territory which will be contributory to and benefited by the proposed deep-water harbor upon the coast of southern California, actuated only by the earnest desire of securing the "greatest good to the greatest

number," do respectfully petition your honorable body, for the reasons above set forth and presented to you at your late session in the city of Los Angeles, to locate the said proposed deep-water harbor upon the bay of San Pedro, and we believe such location will be to the best interests of our entire people.

Respectfully,

J. DeBarth Shorb, orange grower, vineyard proprietor, wine and brandy manufacturer, wine merchant, shipper and exporter, capital paid up $580,000; San Gabriel Wine Company, J. DeBarth Shorb, president; Alhambra Addition Water Company, capital $250,000—organization for supplying the domesticwants of the people and distributors of water for irrigation, importing iron pipes in its work; H. P. Ware, San Gabriel, merchant; C. E. English, orange grower; A. Scott Chapman, orange grower; A. Brigden, orange grower; Sierra Madre Vintage company, manufacturers of wine and brandy; Mountain Wine Company, manufacturers of wine and brandy; A. F. Crank, orange and grape grower; James Craig, orange and fruit farmer; M. E. Winston, orange grower; J. M. Sanborn, orange grower and capiltalist; Cooper Brothers orange and grape growers; D. W. Fargo; P. H. F. Janchow, San Gabriel, Cal.; Joaquin Bot, Catholic pastor; Georgina T. Ward, guardian; Will C. Mulock, E. C. Mulock, J. C. Wallace; S. Richardson, orange grove; H. D. Mcconald, orange grower; E. C. Glidden, orange grower; A. C. Weeks; J. D. Bessonett, merchant; W. P. Johnson, J. F. White; R. F. Bishop, farmer; G. B. Adams, fruit grower; T. L. Skinner, orange grower; C. B. Willis, farmer; R. P. Draper, merchant; F. F. Roach, E. K. Alexander, secretary San Gabriel Valley L. and W. Co., incorporated—$537,000; F. Q. Long, treasurer San Gabriel U. R. T. Railway: R. B. Stephens, insurance agent; Wm. D. Stephens; J. H. Shanklaand, attorney-at-law; L. D. C. Gray.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 42.

COOS RIVER, OREGON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Coos River, Oregon.

DECEMBER 7, 1892.—Referred to the Committee on Rivers and Harbors, and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Capt. Thomas W. Symons, Corps of Engineers, dated October 17, 1892, of a preliminary examination of the navigable tidewater channels of Coos River, Oregon, with a view to remove snags, logs, and other obstructions, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated October 17, 1892, by Capt. Thomas W. Symons, Corps of Engineers, upon a preliminary examination of the navigable tide-water channels of Coos River, Oregon, with a view to remove snags, logs, and other obstructions, made in accordance with provisions of the river and harbor act approved July 13, 1892.

Capt. Symons gives the opinion that these navigable channels of Coos River are worthy of improvement by the General Government to the extent of removing the existing obstructions, and states the facts upon

which this opinion is based. A survey is not considered necessary, as conditions are constantly changing, there being sufficient information on hand upon which to base an estimate of the cost of improvement.

Col. G. H. Mendell, Corps of Engineers, the Division Engineer, regards the improvement as worthy of being made, for the reasons stated in the accompanying report, to the extent of removing the snags and bowlders mentioned, and this opinion is concurred in by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF NAVIGABLE TIDE-WATER CHANNELS OF COOS RIVER, WITH A VIEW TO REMOVE SNAGS, LOGS, AND OTHER OBSTRUCTIONS.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, October 17, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of the "navigable tide-water channels of Coos River, Oregon, with a view to remove snags, logs, and other obstructions."

This examination was made by Mr. J. S. Polhemus, assistant engineer, whose report is herewith.

In my opinion, these navigable channels of Coos River are worthy of improvement by the General Government to the extent of removing the existing obstructions to navigation.

Coos River is the chief tributary of Coos Bay. The main river is about 6 miles long, being formed by the junction of the North and South Forks. Up these forks the tide ranges for about 8 miles from the junction. There is ordinarily a range of tide throughout these portions of about 5 feet. The river from its mouth to the forks is 400 to 700 feet wide and is navigable at any stage of the tide for boats drawing 6 to 7 feet. Each fork is navigable for light-draft steamers at the higher stages of the tide for 8 to 8½ miles. They are 100 to 200 feet wide. In their upper portions, they are obstructed by snags and rocks. The valley along the river and forks is in a good state of cultivation, the principal products being hay, oats, potatoes, fruit, and garden truck. Dairying is quite extensively carried on. There is on the river a creamery consuming daily about 9,000 pounds of milk. This milk is gathered by boats running on the river.

There are three steamers plying on the river; the *Coos River*, drawing 3½ feet, the *Milton* about 4 feet, and the launch *Butcher Boy*. They carry passengers, hay, milk, beef, cheese, apples, and produce of all kinds, and tow logs and scows.

The Government owns two stone quarries, one about 4 miles up the North Fork, and one about 1½ miles up the South Fork. It is from these quarries that stone is procured for building the jetty at the entrance to Coos Bay.

OBSTRUCTIONS.

The obstructions to the navigation of the river consist of snags and sunken logs, and a few sandstone bowlders which have rolled into the channel from the adjacent steep bluffs. It is estimated that there are about two hundred snags and twenty bowlders to be removed. * * *

A survey is not considered necessary, as conditions are constantly changing. If one is deemed essential, it will cost about $300 to make an accurate and close survey and determine the extent of obstructions, prepare plans and estimate of cost.

I inclose copy of Mr. Polhemus's report.

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., November 7, 1892.

Respectfully forwarded to the Chief of Engineers.

For reasons herein stated, Coos River, Oregon, is regarded as worthy of improvement by the General Government to the extent of removal of snags and bowlders herein mentioned.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

REPORT OF MR. J. S. POLHEMUS, ASSISTANT ENGINEER.

EMPIRE CITY, *Oregon, October 8, 1892.*

CAPTAIN: I have the honor to submit the following report upon an examination of the "navigable tidewater channels of Coos River, Oregon, with a view to removing snags, logs, and other obstructions" which I made personally the other day, in accordance with the instructions of your letter of July 30, 1892.

GENERAL DESCRIPTION.

The North and South forks, which unite to form the main Coos River about 6 miles from Marshfield, are fed by a number of insignificant mountain streams, which take their rise in the hills along the eastern border of Coos County.

Coos River empties into Coos Bay nearly opposite the town of Marshfield. The tidal influence extends up each fork about 8 miles from the junction to the head of navigation for small steamboats; beyond, the forks are not navigable for small boats for any distance. The range of tide is only slightly diminished in going up the river, and is about 5 feet.

At the mouth of the Coos River there is a mud bar formed by a deposit of silt brought down by the river during freshets, on which the ruling depth is about 4 feet at mean low water.

The river from its mouth to the forks, about 5½ miles, is moderately straight, and from 400 to 700 feet in width and navigable at any stage of the tide for boats drawing 6 to 7 feet. This stretch has but few snags which need removal.

The South Fork is navigable for light-draft steamers at high water to the head of tide at Mr. McKnight's place, about 8 miles. Along the upper 2 miles the ruling depth at low tide is about 1 foot, and snags and rocks are more frequent. This fork is from 200 to 100 feet wide.

The North Fork is navigable in the same way about 8½ miles to the head of tide at Mr. Laird's place, where a broad-gauge railroad 3 miles long brings in logs for the California Lumber Company. It is about the same width as the South Fork.

The water in the river is generally salt for several miles up the forks. Freshets sometimes occur where the river rises 15 or 20 feet and overflows its banks.

The river flows in a valley between hills from 300 to 800 feet high, which in places slope to the water in rocky bluffs. On either side is generally a strip of fertile bot-

tom, varying in width from a couple of hundred feet to half a mile, and is nearly all in a good state of cultivation, raising hay, oats, potatoes, and fruit. Several hundred cows are supported along the stream. Myrtle grows on the bottoms and fir on the hills, especially as one ascends the tributaries. The bed of the stream is for the most part a sandy mud.

There are no towns on the river, but the country is well settled up and the farmers are prosperous.

A creamery with a $7,000 plant was established on the river this year and consumes about 9,000 pounds of milk per day.

Three small steamers ply on the river from Marshfield, the *Coos River*, drawing about 3½ feet; the *Milton*, about 4 feet, and the launch *Butcher Boy*. They carry passengers, hay, milk, beef, cheese, produce, apples, etc., and tow logs and scows.

Some years from 5,000,000 to 15,000,000 feet of logs come out of Coos River.

The Government owns a stone quarry on each fork, from which the supply of stone for the jetty at the bar is obtained.

OBSTRUCTIONS TO NAVIGATION.

Outside of the mud bar at its mouth, and the natural shoalness of the upper forks, these consist of snags and sunken logs and a few sandstone bowlders, which have rolled into the channel from the adjacent steep bluffs.

IMPROVEMENTS.

To improve the river it would be necessary to take out the snags and sunken logs (possibly two hundred) and remove about twenty bowlders. When the snags are taken out of the way, some of the shoal places will deepen by the accumulation of sand washing away. A pile driver could be fitted up for the work for a slight expense. It would be all that is desired by the inhabitants. * * *

It would take about six weeks, and June would be the proper time to do the work when the river is lowest and clearest. I do not think a survey would be necessary, if so, it would cost about $500.

I am inclined to believe the river is worthy of improvement. The General Government would especially derive benefit by it, by making better quarries up the river available, and thus cheapening the stone supply for the jetties at the entrance.

The other benefits would, of course, be only local, as the whole river lies in Coos County.

Very respectfully, your obedient servant,

J. S. POLHEMUS,
Assistant Engineer.

Capt. T. W. SYMONS,
Corps of Engineers.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 44.

ALVISO SLOUGH, CALIFORNIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Alviso Slough, California.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. W. H. H. Benyaurd, Corps of Engineers, dated October 22, 1892, of a preliminary examination of Alviso Slough, California, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated October 22, 1892, by Lieut. Col. W. H. H. Benyaurd, Corps of Engineers, of a preliminary examination of Alviso Slough, California, made to comply with requirements of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Benyaurd, concurred in by this office, that Alviso Slough is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF ALVISO SLOUGH, CALIFORNIA.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., October 22, 1892.

GENERAL: I have the honor to present the following report on the preliminary examination of Alviso Slough, California, provided for in the river and harbor act of July 13, 1892.

This slough was the subject of a similar examination and report two years ago. The conditions have not materially changed since. There seems to have been some increase in the imports and exports, but I see no reason to modify the opinion then expressed as to the advisability of making the contemplated improvement. The report referred to will be found in that of the Chief of Engineers for 1891, page 2966.

The slough is situated at the upper end of the Bay of San Francisco. In former times, before the advent of the railroads in this section, it was known as "Steamboat Slough," and formed with the bay the main line of communication between San Francisco and the country beyond the head of the bay. It now serves for the transportation of certain bulky articles of freight, such as lumber, coal, rock, hay, etc., forming part of the commerce of San Jose and Santa Clara. These cities are 9 miles distant from Alviso, the head of navagation on the slough, to and from which point all freight must be hauled by wagons.

From Alviso to the mouth of the slough, 3½ miles, there is a good navigable channel, the depths at mean low tide increasing from about 6 feet at Alviso to about 15 feet at the mouth. Spring tides rise 9 feet. The width between banks is somewhat less than 100 feet at Alviso, gradually increasing to about 600 feet at the mouth. There is a fairly good alignment of the slough, only one bend existing, around which navigation is reported to be difficult for sailing vessels. The lands adjacent to the slough, except immediately at Alviso, are at the level of ordinary high tide and are covered at spring tides.

Sailing vessels from 25 to 140 tons burden are mainly engaged in the commerce of the slough. Occasionally small steamers ply between San Francisco and Alviso, carrying wine, fruit, and other agricultural products. The statistics furnished by the board of trade of San Jose and by citizens of Alviso show that these vessels carry a considerable amount of bulky freight. The isolated position of the slough and its distance from the centers of trade of the Santa Clara Valley necessarily limit the amount and character of this freight. Were it possible to extend the navigation of this slough to San Jose or Santa Clara the question would assume a different aspect. With the present methods of handling freight between Alviso and inland points it is evident that only an inconsiderable portion of the products of Santa Clara Valley can profitably find an outlet by way of the slough.

It will be seen that a good navigable channel exists from the bay to

Alviso sufficient, it is believed, for the present and immediate future demands of commerce. It is not now utilized to its full capacity. There may be some difficulty attending the passage by sailing vessels around the upper bend, but the necessity for improving the navigation at that point by cutting across the bend does not seem to be of a pressing nature.

Considering all the circumstances, I am of the opinion that Alviso Slough is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

W. H. H. BENYAURD,
Lieutenant-Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 45.

LOCKS AND DAMS ON THE OHIO RIVER IN PENNSYLVANIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers' report of the examination for locks and dams on the Ohio River in Pennsylvania.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. Amos Stickney, Corps of Engineers, dated October 4, 1892, of a preliminary examination for the location of the necessary number of movable locks and dams on the Ohio River between Davis Island Dam and the dams at or near the mouth of the Beaver River, in Pennsylvania, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated October 4, 1892, by Maj. Amos Stickney, Corps of Engineers, of the results of preliminary examination for the location of the necessary number of movable locks and dams on the Ohio River between Davis Island Dam and the dams at or near the mouth of the Beaver

River, in Pennsylvania, made to comply with provisions of the river and harbor act approved July 13, 1892.

I concur in the opinion of the local and division engineers, that this portion of the Ohio River is worthy of improvement by the General Government.

Maj. Stickney submits an estimate of $2,800 as the cost of the surveys necessary to the preparation of plan and project, with estimate of the improvement proposed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION FOR THE LOCATION OF THE NECESSARY NUMBER OF MOVABLE LOCKS AND DAMS ON THE OHIO RIVER BETWEEN DAVIS ISLAND DAM AND THE DAM AT OR NEAR THE MOUTH OF THE BEAVER RIVER, IN PENNSYLVANIA.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, October 4, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination for the location of the necessary number of movable locks and dams on the Ohio River between Davis Island Dam and the dam at or near the mouth of the Beaver River, in Pennsylvania, assigned to my charge by letter from your office dated July 14, 1892. The examination was made by my assistant, Lieut. Harry F. Hodges, Corps of Engineers, a copy of whose report is transmitted herewith. The approximate locations of the necessary locks and dams for continuing the system of slack-water navigation inaugurated by the construction of the lock and dam at Davis Island were selected by the late Lieut. Col. William E. Merrill, Corps of Engineers, with whom this method of improving the navigation of the upper part of the Ohio River originated. This matter received careful attention from Col. Merrill and it is believed that the locations are well selected.

It is proper and necessary, however, before commencing the construction of such important and costly structures to obtain definite information, which requires a careful survey at the site of each proposed work. By the location of a lock and dam below the mouth of Beaver River, the construction of which has been commenced, it is pretty definitely settled that four additional locks and dams will be required to complete the system from Pittsburg to the lock below Beaver River, a distance of about 30 miles. The number of dams was fixed by the maximum lift which it was deemed advisable to give to any dam. The system of improvement of the navigation of this part of the river by locks and dams was determined upon on account of the steep slope and small supply of water, and also on account of the harbor facilities that would be afforded by the pools for holding large numbers of boats loaded with coal that could take advantage of small rises to start on their way downstream. The dams are made movable in order that they may be thrown down and leave an unimpeded channel for the quick passage of the large fleets of coal boats. That this part of the river is worthy of improvement by the General Government is a question that does not admit of a doubt, since a large part of its great commerce orig-

inates in the adjacent coal mines of the Monongahela River and the immense manufacturing establishments of Pittsburg and vicinity. The necessary survey for the location of lock and dam No. 2 has already been provided for by Congressional act. The surveys for other locations are estimated to cost $2,800.

Very respectfully, your obedient servant,

AMOS STICKNEY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., October 6, 1892.

Respectfully forwarded to the office of the Chief of Engineers.
I concur in the opinion of the district engineer, as herein expressed.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

REPORT OF LIEUTENANT HARRY F. HODGES, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, September 19, 1892.

SIR: I have the honor to make the following report of the preliminary examination for the necessary number of "movable locks and dams" on the Ohio River between Davis Island Dam and the dams at or near the mouth of the Beaver River, in Pennsylvania. This examination was ordered by the river and harbor act of July 13, 1892.

A Board of Engineers, the report of which will be found on pages 1869 *et seq.* of the Annual Report of the Chief of Engineers for 1889, has already stated that it is "practicable, feasible, and advisable to improve the Ohio River from Pittsburg to a point just below the mouth of the Beaver River * * * by the construction of movable dams."

The United States has already entered upon the construction of a movable dam near Beaver, Pa., which will form the sixth of the series necessary to pool the river to this point. The present examination is for the purpose of locating the four dams intermediate between the Beaver Dam and the Davis Island Dam.

The reasons given for the recommendations of the board referred to above, as well as the statistics of the commerce passing Davis Island Dam, published annually in the Report of the Chief of Engineers, sufficiently show that the locality is worthy of improvement.

The approximate location of the dams now in question was fixed as follows in the report of the Board of Engineers already cited:

No. 1. Davis Island Dam; lift, 7 feet. Five and one-half miles from origin of profile.

No. 2. At Merrimans Bar; lift 7 feet. Ten miles from origin.

No. 3. At the Trap; lift, 7 feet. Eleven and three-quarters miles from origin.

No. 4. At Logstown Bar; lift, 7 feet. Eighteen and three-quarters miles from origin.

No. 5. Just below Beaver River; lift 7 feet. Twenty-six miles from origin.

No. 6. Not located. Indicated by profile as having lift of 7 feet, and placed at Raccoon Creek, 31 miles from origin.

It should be noted that the origin of the distances on the profile differs from that on the published map of the Ohio River, being almost a mile further upstream; thus, 31 miles on the profile corresponds to 30 on the published map, very nearly.

At the time when the location was fixed for the dam now under construction near Beaver, which, to comply with the wishes of the navigators, was forced so far downstream as to become Dam No. 6 of the series, instead of Dam No. 5, Col. Mer-

rill, on April 23, 1891, prepared a tabular statement of the heights and dimensions of the four intermediate dams, and located them on a profile, a copy of which accompanies this report. The heights, lifts, and locations recommended by him were as follows:

Number.	Height of wickets.	Lift.	Location.
	Feet.	*Feet.*	
1	12.125	6.125	Davis Island (constructed), 5½ miles from origin.
2	13.741	7.741	Head of Merrimans Bar, 10⅝ miles from origin.
3	13.741	7.741	Below the Trap, 12$\frac{1}{10}$ miles from origin.
4	13.641	7.641	Below Logstown Bar, 19½ miles from origin.
5	10.726	4.726	Below Lacocks Bar, 25 miles from origin.
6	13.155	7.155	Below Raccoon Rapids, 30¾ miles from origin.

The distances given above are measured on the profile and are nearly 1 mile greater than when measured from the origin of the printed map. Col. Merrill contemplated the possibility of moving Dam No. 4 further upstream, to the foot of Deadmans Bar, and drowning the rapids at Logstown by Dam No. 5, but fixed on the location as given above. There seems to be no reason for deviating from the approximate positions mentioned by him. There is always a sufficient margin in placing a dam to allow a proper weight to be given to local considerations of foundation, etc. Accepting the above positions as approximately accurate, I would recommend that instrumental surveys, with soundings and borings, be made for stretches of one-half mile in length below each of the following localities:

Head of Merrimans Bar; foot of the Trap; foot of Deadmans Island; foot of Logstown Bar; foot of Lacocks Bar; and that the definite positions of the dams be determined by the results of the surveys, Dam No. 4 being placed either below Deadmans Island or below Logstown Bar. The estimated cost of the surveys is $3,500.

Very respectfully, your obedient servant,

HARRY F. HODGES,
First Lieutenant, Corps of Engineers.

Maj. AMOS STICKNEY,
Corps of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 46.

DENNIS CREEK, NEW JERSEY.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Dennis Creek, New Jersey.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. C. W. Raymond, Corps of Engineers, dated July 29, 1892, of a preliminary examination of Dennis Creek, New Jersey, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated July 29, 1892, by Maj. C. W. Raymond, Corps of Engineers, of the results of preliminary examination of Dennis Creek, New Jersey, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Maj. Raymond, concurred in by the Division Engineer and this office, that Dennis Creek is worthy of improvement by the General Government.

It is estimated that $250 will be required to make a survey of the creek with a view of submitting plan and estimate for its improvement.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF DENNIS CREEK, NEW JERSEY.

UNITED STATES ENGINEER OFFICE,
Philadelphia, Pa., July 29, 1892.

GENERAL: In compliance with instructions contained in Department letter dated July 14, 1892, I have the honor to submit the following report upon a preliminary examination of Dennis Creek, New Jersey, in accordance with a provision of the river and harbor act approved July 13, 1892.

Dennis Creek rises in the northern part of Cape May County, N. J., flows in a southwesterly direction, and empties into Delaware Bay about 20 miles above Cape May. The head of navigation is at the County Road Bridge, in the village of Dennis, about 9 miles by the devious course of the creek, and about 4½ miles, in a direct line, from the mouth. The creek runs in the middle of a valley, about three-fourths of a mile wide at Dennisville, gradually widening to 4 miles at the mouth. The valley was originally a cedar swamp throughout the course of the creek, but below the bridge it is now salt-meadow land, just above ordinary high water, and is partly protected from overflow by low mud banks. Four large streams empty into the creek at points 3, 5, 6, and 7 miles below the bridge, having 8 to 10 feet high-water depth at their mouths. There are no bridges below Dennisville. Timber wharves on each side of the creek extend from the bridge about 600 feet downstream. There are two other landings at distances, respectively, of 1 and 3½ miles below the bridge, from which some wood and hay are shipped.

From deep water in Delaware Bay to the mouth of the creek there is a high-water depth of not less than 8 feet, with several feet more of liquid mud so diluted as to offer no perceptible resistance to the passage of vessels of 10 or 12 feet draft. From the mouth to a point 1½ miles below the bridge the channel has a high-water depth of about 12 feet, varying in width from 300 to 150 feet, with steep banks. For the remaining distance of 1½ miles to the bridge the channel has a bottom width of 60 to 70 feet and a width between banks of 80 to 100 feet up to the docks, where both the top and bottom widths are about 60 feet. The mid-channel depth at high water over this last reach of 1½ miles is about 5 feet. The range of tide is about 5 feet, so that over this reach the channel is bare at low water, except a channel 15 feet in width and 6 to 8 inches in depth formed by the back water. The original depth of channel over this reach was about 7 feet, but about eight years ago a dam just above the bridge, formed to make a cranberry bog, broke away, carrying the material of the dam and the accumulated sediment back of it down in this reach, shoaling it to an average depth of 2 feet.

The improvement desired is the formation of a channel 60 feet wide and 8 feet deep at high water from the bridge downstream about 1½ miles, besides some increase in width at five bends within the reach. This would require the excavation of about 75,000 cubic yards of mud.

All the material can be cast out upon the banks without objection from the land-owners. * * *

The population of Dennisville is estimated at 600. There are two sawmills, two gristmills, two blacksmith shops, two wheelwright shops, four stores, and two shipyards.

The following statistics of the commerce of the creek for the year 1891 were furnished by the deputy collector for the district of Bridgeton:

ARTICLES ARRIVING.

	Gross tons.	Value.
General merchandise	375	$15,000
Stone lime	90	250
Gas lime	536	750
Phosphates	100	3,000
Anthracite coal	1,000	5,000
Corn	250	6,000
Salt hay	1,500	9,000
Ship timber	1,400	21,000
Ship iron and spikes	89	4,500
Total	**5,340**	**64,500**

ARTICLES DEPARTING.

Oak and pine cord wood	12,687	22,500
Salt hay	250	1,500
Cedar rails	447	8,000
Cedar siding and plank	67	1,500
New vessels, two in number	1,200	67,000
Total departing	14,651	100,500
Total arriving and departing	19,991	165,000

There are sixteen sailing vessels and four scows owned here which navigate the creek with considerable regularity, besides some transient vessels.

It is represented at the shipyards that during the last thirty years more than sixty sea-going vessels of 800 to 1,050 gross tons carrying capacity have been built at Dennisville. In one season five vessels were built. Two were built in 1891, the larger one 145 feet in length, 35 feet in width, and 17 feet in depth of hold. These two vessels were sold for $67,000, and the labor on them cost $17,000. These vessels require when launched 7½ feet of water to float them. In the present state of navigation they can only be launched and hauled through the mud to deep water at great expense. The demand is for still larger vessels. Owing to the lack of sufficient depth of water offers of contracts for vessels to be built this year have been declined, and no more vessels of this class can be built here till navigation is improved.

The improvement of this creek does not involve a large expenditure, and it will probably be permanent. It would be of great benefit to the shipbuilding interest and to the local commerce. I am therefore of the opinion that Dennis Creek is worthy of improvement by the General Government. It will cost $250 to survey the creek with the view of submitting plan and estimate for its improvement.

Very respectfully, your obedient servant,

C. W. RAYMOND,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Henry L. Abbot, Corps of Engineers, Division Engineer, Northeast Division.)

[First indorsement.]

NORTHEAST DIVISION, ENGINEER OFFICE,
New York, August 1, 1892.

Respectfully forwarded to the Chief of Engineers, U. S. Army.

I concur with Maj. Raymond in considering Dennis Creek, New Jersey, to be worthy of improvement by the General Government to the extent and for the reasons stated.

HENRY L. ABBOT,
Colonel of Engineers, Bvt. Brig. Gen., U. S. A.,
Engineer Northeast Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 47.

EVERETT HARBOR, WASHINGTON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Everett Harbor, Washington.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Capt. Thomas W. Symons, Corps of Engineers, dated October 12, 1892, of a preliminary examination of Everett Harbor, Washington, including mouth of Snohomish River, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 12, 1892, by Capt. Thomas W. Symons, Corps of En, gineers, upon preliminary examination of Everett Harbor, Washington-including mouth of Snohomish River, made to comply with provisions of the river and harbor act approved July 13, 1892.

Capt. Symons reports that, in his opinion, the locality under consideration is not worthy of improvement by the General Government. The division engineer is of the same opinion as Capt. Symons for the reasons stated in the accompanying report.

I concur in the views of these officers.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF EVERETT HARBOR, WASHINGTON, INCLUDING MOUTH OF SNOHOMISH RIVER.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, October 12, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of Everett Harbor, Washington, including mouth of Snohomish River.

In my opinion Everett Harbor, Washington, including mouth of Snohomish River, is not worthy of improvement by the General Government.

Everett is a town about one year old, situated at the mouth of the Snohomish River. It occupies the site of old Port Gardner on the Sound and Lowell on the Snohomish River, and takes in nearly all of the upland peninsula lying between Puget Sound and the Snohomish River and a portion of the bottom lands of the Snohomish River delta.

A great amount of work has been done in cleaning the town site, grading and planking streets, etc., and a number of very handsome buildings have been and are being erected, some of them in the most substantial manner of stone and brick. Besides these there are many buildings of cheaper construction and of temporary character.

It is given out by the projectors of the enterprise that here is to be established a "city of industry," and in furtherance thereof there has been established a nail factory, where wire nails are made, the first wire for the purpose having been brought from Belgium; a paper mill, where as yet only wrapping paper has been manufactured; and a steel barge manufactory, where it is proposed to make whaleback barges of the general type of the *Charles W. Wetmore*, recently wrecked on the Oregon coast.

On her trip to the Pacific coast the *Wetmore* brought out the machinery for this factory, and the steel plates and structural steel for another whaleback, which it is said is about to be commenced at the works.

These three industrial enterprises have been widely scattered, the nail factory being at old Port Gardner, now known as West Everett, the paper mill at Lowell, now known as South Everett, and the steel-barge works at the northern end of the peninsula, the distances apart in air lines being as follows: Nail works to paper mill, about 2½ miles; nail works to steel-barge works, about 3 miles; steel-barge works to paper mill, about 4 miles.

Besides these, there are several sawmills in existence, constructing, and in contemplation.

The Great Northern Railroad runs through Everett, passing along the shore of Puget Sound and then up the Snohomish and Skykomish, to the summit of the Cascade Mountains. A branch crosses the Snohomish and keeps up the shores of Puget Sound to Fairhaven, New Whatcom, and Blaine.

A railroad, known as the Everett and Monte Christo, is under construction from Everett to the Monte Christo mines, near the summit of the Cascades, and it is said a large smelter is to be built in the vicinity of the barge works for reducing the ore from these mines.

Everett has never been incorporated as a municipality, so that it is difficult to fix exactly the limits of the future city of Everett.

HARBOR.

About the peninsula, which is the principal portion of the town site of Everett, there is a water frontage of approximately 9½ miles. Of

this, about 1 mile is adjacent to the deep waters of Puget Sound. This deep-water frontage is at old Port Gardner or West Everett. Adjoining this deep-water frontage on the Puget Sound side, the peninsula fronts the tide flats of the Snohomish River delta. This tide-flat frontage is about 2½ miles in length to the mouth of the Snohomish. The remainder of the frontage is upon the Snohomish River proper and what is known as the Old River, and is about 6 miles in length. In this Old River the depth of water is very deficient for puposes of navigation; it is, in fact, practically bare at low-water, except in the vicinity of the barge works, where there is a low-water depth of 3 to 4 feet.

In the Snohomish River proper, above the junction of Steamboat Slough and Old River, the water is much deeper, being ample for all boats accustomed to ply on the river at all stages of the tide.

It is thus seen that although there is a large water frontage at Everett, there is but a small part on deep water which can be reached by ocean-going craft at all stages of the tide.

Attention is invited to the Coast Survey chart No. 6450.

The Snohomish is essentially an alluvion-bearing stream, like all rivers running from the Cascade Mountains into Puget Sound.

Just before Lowell is reached, Ebey Slough takes off from the main river, and, running through the eastern portion of the delta, joins Steamboat Slough at its mouth. About 3 miles below Lowell the main river divides into three channels, known respectively as the Old River, Union Slough, and Steamboat Slough. Through all these sloughs the tide ebbs and flows. What is known as the Old River flows along the front of the Everett Peninsula and out to the sound past the barge works, and in a shallow and illy defined channel, with perhaps 2 feet depth at low water, across the tide flats lying beyond the mouth. This Old River is very shallow and filled with snags, piles, dolphins, etc. Practically no use has been made of it for purposes of navigation. At low tide there is practically no water in it for navigation, although holes exist with from 3 to 6 feet depth.

The most important, as far as navigation goes, of the delta channels of the Snohomish River is the one known as Steamboat Slough. This is used almost exclusively by steamboats going into and out of the Snohomish River. After flowing through the delta, it passes out in a pretty well defined channel across the tide flats. The channel flows directly under Priest Point, the southern end of the Tulalip Indian Reservation, and after passing this it spreads out and divides into three shallow channels. Ebey Slough and Union Slough unite with Steamboat Slough in the channels across the tide flats. These channels have a governing depth of about 2 feet at low water.

A very important feature of the harbor of Everett and the mouth of the Snohomish River is the great area of tide flats in front of the town site and the mouths of the river.

These tide flats and shallows have a total area of about 5,000 acres out to deep water, of which 3,500 acres are south of the main entrance channel to Steamboat Slough. These tide lands are still owned by the State of Washington. The reason why Everett is not yet incorporated, it is understood, is, that the owners of the town site may secure title to them at a lower price and under more advantageous conditions than if the place were incorporated.

I have endeavored to state the situation at Everett as completely and concisely as possible.

The projectors of the town and people who have become interested therein lay great stress upon the fact that it so largely fronts on the

Snohomish River, from the fresh waters of which they expect to derive great benefit due to their well-known anti-teredo effects.

They have some vague and indefinite plans about converting the Old River, and possibly some of the sloughs, into tidal basins, and dredging them out and dredging out a channel or channels across the tide flats.

Mr. Henry Hewett, the founder of Everett, informed me that what was desired was, that the Government should make and perfect these plans and then give his company the right to execute them, he saying further that they did not wish to await the slow action of the Government in the construction thereof.

The commerce entering and leaving the Snohomish River by way of Steamboat Slough is quite limited, and is accommodated by existing conditions. The commerce entering and leaving the "Old River" channel is practically nil. The *Wetmore* was taken in this way to the barge works and to Lowell, but it was through a carefully buoyed-out channel and on a tide of probably 15 feet height.

The conversion of this Old River either alone, or in connection with other sloughs, into tidal basins by the General Government, is not, in my opinion, justified by existing or immediately prospective commerce.

The propriety of the Government's preparing plans for such work to be executed by private parties is a matter of policy.

It would seem to me, however, as if these should be made by the parties interested, who propose doing the work. As these plans contemplate important changes in existing conditions, it would in all probability be necessary to have governmental approval thereof.

I have been unable to procure any statistics concerning the manufacturing, building, and commercial interests of Everett.

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., November 7, 1892.

Respectfully forwarded to the Chief of Engineers.

For reasons herein stated Everett Harbor, including the mouth of Snohomish River, is regarded as not worthy of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 48.

SOUTHOLD HARBOR, LONG ISLAND, NEW YORK.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Southold Harbor, Long Island, New York.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Col. D. C. Houston, Corps of Engineers, dated November 2, 1892, of a preliminary examination and survey of Southold Harbor, Long Island, New York, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, dated November 2, 1892, from Col. D. C. Houston, Corps of Engineers, of the results of a preliminary examination of Southold Harbor, Long Island, New York, made to comply with provisions of the river and harbor act approved July 13, 1892.

I concur in the opinion of Col. Houston that the locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF SOUTHOLD HARBOR, LONG ISLAND, NEW YORK.

ENGINEER OFFICE, U. S. ARMY,
New York, N. Y., November 2, 1892.

GENERAL: I have the honor to submit the following report on preliminary examination of Southold Harbor, Long Island, New York, made in pursuance of the river and harbor act of July 13, 1892.

This harbor (so termed) is simply a private landing place or wharf on the west side of Southold Bay in the eastern part of Long Island. The wharf is 500 feet long, extending southeasterly from the shore. The natural depth at the head of the wharf is about 5 feet at mean low water and it is about 750 feet farther out to a depth of 12 feet. Some years ago a channel 10 feet deep or more and 100 feet wide was dredged up to the wharf by private parties. A recent examination shows that there is at present a depth of 10 feet and a width of about 50 feet. The wharf is used as a regular landing for the Sag Harbor and New York steamers, and has been frequently used as such by the New London and Sag Harbor boats. All steamers have to back out, as there is not channel room to turn at the end of the wharf, and the New London boats, which are screw boats, do not readily do this.

What is desired is to have the channel widened to 150 or 200 feet, with 12 feet depth, and a turning basin made at the end of the wharf, so that vessels can go out without backing. This locality is of considerable importance as a point for receiving supplies and shipping farm products, the nearest landing place for steamers being at Greenport, about 4½ miles distant. It does not seem to me that the improvement desired is a proper one to be undertaken by the United States. The difficulty can be remedied by extending the wharf to deeper water with better results than by dredging. In either case, I consider the improvement a matter of private enterprise, and am therefore of opinion that the locality is not worthy of improvement by the General Government.

The locality is shown on the chart of Long Island Sound, published by the U. S. Coast and Geodetic Survey.

Very respectfully, your obedient servant,

D. C. HOUSTON,
Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 49.

ALLOUEZ BAY AND NEMADJI RIVER, WISCONSIN.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, a report of the examination of Allouez Bay and Nemadji River, Wisconsin.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Clinton B. Sears, Corps of Engineers, dated November 10, 1892, of a preliminary examination of Allouez Bay and Nemadji River, at Superior, Wis., made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: The river and harbor act approved July 13, 1892, made provision for a preliminary examination of Allouez Bay and Nemadji River, at Superior, Wis. These localities, though combined in a single item in the act, are in reality two separate and distinct bodies of water, and, being subject to different conditions, Maj. Clinton B. Sears, Corps of Engineers, in submitting report, dated November 10, 1892, upon the preliminary examination, a copy of which is herewith, has considered them independently.

Maj. Sears states that in his opinion Allouez Bay is worthy of improvement in view of its present use, the ease and cheapness with

which the improvement can be made, and the certainty that the remaining dockage shores will be rapidly developed and put to use; and he estimates that a survey upon which to base a project for improvement can be made for $1,200.

The Nemadji River has a channel of sufficient depth for present requirements, and, as the removal of such obstructions as would be justified can be done at small expense by the interests most directly concerned, Maj. Sears is of the opinion that the river is not worthy of improvement by the General Government at the present time.

Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division, reports that, for the reasons stated, he concurs in the views of the district engineer in each case, and these opinions are also concurred in by this office.

Very respectfully, your obdient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF ALLOUEZ BAY AND NEMADJI RIVER, AT SUPERIOR, WISCONSIN.

UNITED STATES ENGINEER OFFICE,
Duluth, Minn., November 10, 1892.

GENERAL: I have the honor to submit the following report on a preliminary examination of Allouez Bay and Nemadji River at Superior, Wis., in compliance with letter from your office of July 14, 1892, to Capt. W. L. Fisk, Corps of Engineers, U. S. A. my predecessor.

This examination was directed to be made by section 7 of the river and harbor act of July 13, 1892. In the act Allouez Bay and Nemadji River are joined, but in reality they are two distinct bodies of water, both emptying into Superior Bay, the two mouths being parallel and separated from each other by a strip of low ground some 200 yards wide. They debouch into Superior Bay near its southern end, and almost opposite the United States piers which define the Superior entry.

ALLOUEZ BAY.

This bay is some 3,900 yards in length, with an average width of about 1,300 yards, the longer axis lying northwest and southeast. From the entrance for about one-third of its length the water is from 3 to 5 feet deep, and over the greater part of the remaining area it is from 6 to 9 feet in depth. The bottom is sand and clay. The bay is separated from Lake Superior by a long, low, sandy spit known as Wisconsin Point, the average width of which is 150 yards. The other shores of the bay are low and in places marshy, but firm ground and higher land surrounds the bay on the south, at a distance of from 500 to 1,000 yards. This topography makes the bay a specially fine site for the location of ore and coal docks, which have to have their top grades at quite a height above water level. Railroads can approach on the natural ground back of the bay, and be kept at grade by comparatively short trestling or embankment clear out to the docks. One railroad has already made its terminal there, and others have acquired terminal property around the bay, and expect to utilize it at an early day.

The Duluth and Winnipeg Railroad Company, operated by the North Star Construction Company, is building extensive docks on the bay for the shipment of ore. This road extends from Allouez Bay to Deer River in Minnesota, a distance of 112 miles. At Stony Brook Junction it connects with the Duluth, Missabe and Northern Railroad, which latter extends to the heart of the great Missabe Iron Range by three branches which reach the Mountain, the Missabe Mountain, the Pittsburg, the Biwabik, and the Cincinnati iron mines. On Swan River the Duluth and Winnipeg Railroad connects with branches running to the Buckeye, Foley, Diamond, and other mines in the Swan Lake district. For the next season there are 1,150,000 tons of ore guaranteed for delivery at the Duluth and Winnepeg docks on Allouez Bay, and some 350,000 tons more have been promised. This company's ore dock on the bay is now 180 feet in length, and it is actually shipping ore from it. It contemplates extending the dock 2,000 feet farther, which will give it a dock with 400 pockets of 180 tons each, or a total capacity of 72,000 tons. Besides the dock, this company has dredged out a channel 3,700 feet long, 75 feet wide, and 18 feet deep from the land end of dock on east side out to the entrance, and a similar channel on the west side, round the present free end of dock and connecting with the other channel. On the improvement so far completed it has expended $195,000. On part of the dock yet to be built, and in dredging an 18-foot channel along the whole west side, it expects to spend the further sum of $592,000. It also expects to build other docks for handling lumber, coal, grain, and merchandise. It is reported that another company will build two large coal docks this winter near the ore docks, and that next year other ore and coal docks farther to the east are contemplated.

Any improvement of the bay will necessarily be by dredging, which, on account of the soft character of the bottom and the proximity of dumping grounds, can be done for a comparatively low price. On account of the dock and channel already completed and in use by private parties; of the certainty that the remaining dockage shores will be rapidly developed and put to use; of the nearness of the bay to the deep water of the lake, and of the ease and cheapness with which a radical betterment can be obtained, I am of the opinion that Allouez Bay is worthy of improvement by the General Government.

It is estimated that a proper survey upon which to base a project for improvement can be made for $1,200, and that it will take, including office work, not to exceed six weeks.

NEMADJI RIVER.

This river takes its rise in Moose Lake about 30 miles southwest of Superior, flows in a generally northeast direction, and empties into Superior Bay near the entrance.

It is a crooked stream, and after leaving the high ground has a small and nearly uniform slope for the last 10 or 12 miles of its course.

It is said to be subject to high freshets in spring, but the 4 or 5 miles of its course towards the mouth show no evidence of great height or long continuance, the banks being uniform, of steep pitch, and with sod, shrubs, and in places small timber growing down to the edge of the water. It is of an almost uniform width of some 60 yards along the lower courses, and where not shoaled up by snags or sunken booms, has a minimum natural depth of 8 feet for 7 miles from the mouth, with numerous pools carrying as much as 12 and 14 feet. Above this,

for several miles, it is said that 6 feet can be carried. It is also said that a tug, draft and length not given, once went 8 miles from the mouth. I went up 4¾ miles in a launch drawing 3 feet, and beyond striking a few snags, breaking through a log boom. and dodging between the trestles of two pile bridges, had no trouble in getting that distance. For a comparatively small sum in clearing out snags and boom trestles, and in cutting leaning timber, a good channel for short boats of 8-foot draft could be made. For larger vessels considerable dredging would be necessary, involving the easing off of several bends. As far as I went I found no evidence of any efforts at establishing any manufacturing industries except one small brick yard, and no evidences of any use of the banks for shipping purposes. I saw but two dwelling houses and one abandoned milk dairy, and one frame building under construction which was said to be intended for rendering out grease. All the rest, as far as could be seen, was a wilderness.

At South Superior, 8 miles from the mouth, measured along the channel, and 4 miles in an air line, there are three manufacturing establishments. The nearest to the river is distant three-quarters of a mile, and all three are near the railroad junction, showing, that when built, they expected to market their products by rail. In time, they may be of such importance as to justify a material betterment of the present channel. At present, however, the extent of such industries does not justify anything beyond controlling the logging interests, to prevent artificial obstructions, the clearing out of snags, and cutting off of leaning timber, and the substitution by the county of a draw or clear span in place of the trestle-bridge. All this can be done at small expense by the present manufacturing industries, and by the county. I am, therefore, of the opinion that, at the present time, the Nemadji River is not worthy of improvement by the General Government.

Respectfully submitted.

CLINTON B. SEARS,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. POE, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., November 12, 1892.

Respectfully forwarded to the Office of the Chief of Engineers.

For the reasons stated by the District Engineer, I concur in his views in each case.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 50.

SAVANNAH RIVER, GEORGIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Savannah River, Georgia.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Capt. O. M. Carter, Corps of Engineers, dated November 14, 1892, of a preliminary examination of Savannah River, Georgia, between Spirit Island and the point where the Charleston and Savannah Railway crosses said river, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated November 14, 1892, by Capt. O. M. Carter, Corps of Engineers, upon preliminary examination of "Savannah River, Georgia, between Spirit Island and the point where the Charleston and Savannah Railway crosses said river," made to comply with provisions of the river and harbor act approved July 13, 1892.

This section of the Savannah River is at present under improvement by the United States. Work on that portion of the river from Spirit Island to within 5 miles of the Charleston and Savannah Railway bridge,

is carried on under a project which aims at securing a depth of 26 feet at mean high water from the city of Savannah to the sea, while the project under which work is being carried on for the improvement of the remaining 5 miles to the said railway bridge aims at securing a navigable steamboat channel 5 feet deep at ordinary summer low water between the cities of Augusta and Savannah. Detailed surveys of the Savannah River were made in 1889 and 1890, and reports thereon printed in the Annual Report of the Chief of Engineers for 1890.

Capt. Carter reports that an examination made during November, 1892, shows that no material changes in the volume of commerce or in the physical condition of the river have taken place since the publication of the reports alluded to. In his opinion, Savannah River from Spirit Island to the Charleston and Savannah Railway Bridge is worthy of improvement to the extent which has already been recommended and approved, and that no further survey is now considered necessary.

Col. Wm. P. Craighill, Corps of Engineers, the division engineer, is of the same opinion as the local engineer, and I concur in the views of these officers.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF SAVANNAH RIVER, GEORGIA, BETWEEN SPIRIT ISLAND AND THE POINT WHERE THE CHARLESTON AND SAVANNAH RAILWAY CROSSES SAID RIVER.

UNITED STATES ENGINEER OFFICE,
Savannah, Ga., November 14, 1892.

GENERAL: In compliance with Department letter, dated July 14, 1892, I have the honor to submit the following report of a preliminary examination of the "Savannah River, Georgia, between Spirit Island and the point where the Charleston and Savannah Railway crosses said river:"

Spirit Island is 6 miles below the city of Savannah and the Charleston and Savannah Railway bridge is 14 miles above. Operations for the improvement of the 6 miles below the city of Savannah and the first 9 miles above are now being carried on under a project which aims at securing a depth of 26 feet at mean high water from the city of Savannah to the sea, while the project under which work is now being carried on for the improvement of the remaining 5 miles to the Charleston and Savannah Railway bridge aims at securing a navigable steamboat channel 5 feet deep at ordinary summer low water between the cities of Augusta and Savannah.

Detailed surveys of the Savannah River, covering the portion under consideration, were made under my direction in 1889 and 1890, and reports thereon were submitted by me on June 30, 1890. Those reports, together with statements of the amount of commerce and navigation interested in the improvement, are published on pages 1259 and 1328 of the Annual Report of the Chief of Engineers for 1890.

An examination made during the present month shows that no material changes in the volume of commerce or in the physical condition of the river have taken place since the publication of the reports al-

luded to, and, inasmuch as the present and prospective demands of commerce, as well as the physical condition of the river, are fully set forth in those reports, I respectfully refer to them for details.

From all of the foregoing, I am of the opinion that the "Savannah River, Georgia, between Spirit Island and the point where the Charleston and Savannah Railway crosses said river," is worthy of improvement to the extent which has already been recommended and approved; but as the necessary surveys have already been made and work under the approved projects has been begun, no further survey is now considered necessary, and no estimate of cost is therefore submitted.

Very respectfully, your obedient servant,

O. M. CARTER,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.
(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., November 16, 1892.

Respectfully submitted to the Chief of Engineers.
I concur in the opinions and recommendations of the local engineer.

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 51.

ROGUE RIVER, OREGON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Rogue River, Oregon, from Grants Pass to the mouth.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Capt. Thos. W. Symons, Corps of Engineers, dated October 10, 1892, of a preliminary examination of Rogue River, Oregon, from Grants Pass to the mouth, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report of October 10, 1892, by Capt. Thomas W. Symons, Corps of Engineers, of the results of preliminary examination of Rogue River, Oregon, from Grants Pass to the mouth, made to comply with provisions of the river and harbor act approved July 13, 1892.

Capt. Symons states that in his opinion the river is not worthy of improvement by the General Government, and this opinion is concurred in by the Division Engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF ROGUE RIVER, OREGON, FROM GRANTS PASS TO THE MOUTH.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, October 10, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of "Rogue River, Oregon, from Grants Pass to the mouth."

The Rogue River and Valley are, in western Oregon, second in importance only to the Willamette River and Valley.

The Rogue River drains the western slopes of the Cascade Mountains from about latitude 42° to latitude 43°. After flowing through the fertile valley named for it, the river breaks through the Coast Range and enters the Pacific Ocean in latitude 42° 25′.

The river is about 300 miles in total length, and it has a drainage area of 5,000 square miles.

The portion of Oregon known generally as "the Rogue River Valley," is limited, and bounded on the east by the Cascade Mountains; on the south by the Siskiyou Mountains; on the north by the Rogue River Mountains; and on the west by the Coast Range. It is approximately 40 miles in length from north to south, and 40 miles in width from east to west, and contains, probably, 1,000 square miles of agricultural land.

The average elevation of the valley above the sea is about 1,500 feet. The Southern Pacific Railroad passes through the valley from its northwestern corner to its southern limit, entering it at Grants Pass, and leaving it at Ashland, the two principal cities therein.

This valley possesses nearly everything that tends to make life pleasant. The mountain scenery on every side is of the grandest and most beautiful description; the mountains themselves are covered with timber of exceptionally fine quality, and from their sides streams of the purest water run from every point of the compass to unite with the Rogue River. The climate is wonderfully fine, and the soil of great fertility. Nature has specially adapted it to raising peaches, which are grown in great quantities and of the finest description. This fact has given to the valley its poetic name of "the Peachblow Paradise."

The valley has a population of 25,000 to 30,000 people. The principal towns are: Ashland, population 2,300; Grants Pass, population 2,300; Medford, population 1,800, and Jacksonville, population 1,000.

The chief industries carried on in this valley are farming, fruit raising, mining, lumbering, and the manufacture of doors, windows, moldings, etc., from the sugar pine of the surrounding country.

The only drawback to the valley is its remoteness from the centers of population and the markets of the world, and the fact that it is reached by but one railroad which has a monopoly of the transportation business and charges what many believe to be exorbitant rates for the services rendered.

It is but natural that those interested in the development of the valley should, in their efforts at bettering their condition, look at their principal river flowing away to the sea, and ask that, if possible, relief be afforded them through its instrumentality.

If the Rogue River were navigable from Grants Pass to the sea, and there existed a fair harbor at or near its mouth, the benefits to be derived from it by the people of the Rogue River Valley would be very great.

Unfortunately the Rogue River from Grants Pass to the sea is unnavigable, and investigation reveals the fact that it would be impossi-

ble to make it navigable except at a cost so great as to place it beyond the pale of consideration notwithstanding the extended benefits that its navigablity would bestow. It is in consequence of this that I am reluctantly compelled to state that in my opinion the Rogue River from Grants Pass to the sea is unworthy of improvement by the General Government.

Grants Pass is at the lower end of the Rogue River Valley previously described. Just below it the river enters the Coast Range of mountains and soon is flowing through a deep and rugged cañon of the wildest and grandest description; bleak and rocky mountains rise right from the water's edge; here and there are deep and quiet stretches of water, and then come falls and rapids impassable for any character of boat. In the 25-mile stretch in the heart of the mountains, the river has an average fall of probably 20 feet to the mile, with a maximum of fall of 60 to 80 feet to the mile.

From Grants Pass to tide water, at the mouth of the Rogue River, the river is approximately 125 miles in length and its fall is 914 feet, an average of 7.3 feet per mile. As this fall is so concentrated in some places that in some reaches the fall is from 60 to 80 feet to the mile, it is evident that the river can not be made navigable by any system of regularization. The only method of making it navigable would be by a system of locks and dams. Allowing 1 foot per mile for flowage, there would be required locks with an aggregate lift of 789 feet. This would involve the construction of 52 locks and dams with an average lift of 15 feet.

* * * * * * *

The cost of maintenance of such a system of locks and dams would be yearly very great.

Nor is this all, for at the mouth of the river there is no harbor whence the products brought down by water could be shipped with safety, convenience, and dispatch. The tidal compartment of Rogue River does not furnish and can not be made to furnish such a harbor, and there is no place in the vicinity where such a harbor could be constructed except at an entirely prohibitory expense.

My opinion in respect to the Rogue River is substantially in agreement with that of Maj. G. L. Gillespie, Corps of Engineers, under whose direction an examination was made in 1878, and whose report in reference thereto is printed in the report of the Chief of Engineers of 1879, page 1856. The facts and statements therein recorded form largely the basis of this report. In addition, Lieut. Francis R. Shunk, Corps of Engineers, visited Grants Pass and the mouth of the Rogue River to gather any additional data or information since the writing of Maj. Gillespie's report and to learn the wishes and sentiments of the people, etc. His report is herewith.

In conclusion it may be stated that the general opinion among well-informed people of Grants Pass and about the mouth of the river is that any attempt to make Rogue River from Grants Pass to the mouth navigable must be looked upon as chimerical.

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., October 13, 1892.

Respectfully forwarded.

For reasons herein stated Rogue River, Oregon, from Grants Pass to the mouth, is regarded as not worthy of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

REPORT OF LIEUTENANT FRANCIS RAWN SHUNK, CORPS OF ENGINEERS.

PORTLAND, OREGON, *September 12, 1892.*

SIR: I have the honor to submit the following report of an examination of Rogue River, Oregon, from Grants Pass to the mouth, made by me in August, 1892.

In compliance with your orders dated July 27, 1892, my investigation was confined chiefly to the "gathering of statistics relative to population, commerce, business interests, present and prospective navigation, history of attempts at navigation, the wishes and views of the people living at Grants Pass and the mouth of the river and, as far as ascertainable, of those living or engaged in business at intermediate points."

The Rogue River Valley and the country adjacent to the lower course of the river, having no direct communication with each other, may well be considered separately.

The Rogue River Valley lies east of the Coast Range of mountains. It is 55 miles long and is composed of the upper and lower valleys. The upper valley is 35 miles long and 15 to 20 miles wide. The lower valley is 20 miles long and 3 or 4 miles wide. The two are continuous.

The population of the upper valley is about 20,000. It contains the flourishing railroad towns of Medford, with 1,800 inhabitants; Jacksonville, with about 1,000; and Ashland, with about 2,300.

The lower valley has a population of about 4,000. The only considerable town is Grants Pass, the county seat of Josephine county; it has 2,300 inhabitants.

The chief industries of the surrounding country are farming, fruit-raising, lumber, and mining.

During the season of 1891, 483 carloads of fruit and a somewhat greater quantity of vegetables were shipped from Grants Pass to Portland and San Francisco, chiefly to San Francisco. The Rogue River Valley apples are purchased by a San Francisco company and shipped to Australia.

No rough timber is exported. The Sugar Pine Lumber and Door Company, which manufactures doors, windows, moldings, boxes, etc., gives occupation to about a dozen small sawmills. It has a market from Salem, Oregon, to San Diego, Cal. During the last fiscal year, its receipts amounted to $250,000,

The mines in the country tributary to Grants Pass are chiefly gold. There is a little silver. The average yearly output of the mines is about $130,000.

During the past fiscal year, the First National Bank of Southern Oregon, at Grants Pass, did a business amounting to $750,000.

There are also two breweries and a brickyard, which supply local demands; a large general store and numerous retail stores of various kinds; five hotels; four churches; two newspapers, and a public school.

General merchandise is imported chiefly from San Francisco.

Grants Pass is situated on the line of the Oregon and California Railroad, which belongs to the Southern Pacific system. It is 296 miles from Portland and 476 miles from San Francisco. The railroad is practically its only means of communication with the outer world. Freight rates to Portland vary from 20 cents to $1.37 per 100 pounds; to San Francisco, from 30 cents to $1.60 per 100 pounds, according to bulk and quantity sent.

There are good wagon roads between the towns in Rogue River Valley, and there are wagon-road communications with California and the Willamette Valley, not, however, used for commerce. There is a road down the Rogue River for about 10 miles and a trail for a few miles farther. Beyond that it is said that a man can scarcely walk.

The people of Grants Pass do not appear to think that navigation will be possible as far up as that town. They think, however, that the improvement of the river mouth would encourage the construction of a wagon road and perhaps, eventually, a railroad between Grants Pass and the mouth. They would like therefore to see the mouth improved.

Along the lower 40 miles of the river there is a scattered population engaged chiefly in farming.

The only settlement is Gold Beach, formerly Ellensburg, about half a mile above the mouth of the river on the south side. Its population is about 100. Gold Beach is on the coast stage road, 68 miles north of Crescent City, Cal., and 62 miles south of Bandon, on the Coquille River. Its trade is carried on exclusively by water with San Francisco.

There is a great deal of timber along the river; the best is in the coast mountains and rather inaccessible. There is a good supply of tan oak. Fruit grows very well in some places. There are said to be copper and silver deposits about 14 miles above the mouth, but they are not worked.

Cattle and sheep are raised on the ranches.

The principal industry is salmon canning. Mr. R. D. Hume has a cannery at Gold Beach, whose output is 18,000 to 20,000 cases per year. Mr. Hume has also a very successful fish-hatching establishment.

There is one hotel in Gold Beach and one general store.

The exports are chiefly canned salmon and tan bark. Butter, wool, and hides are exported in small quantities.

The imports are articles of general merchandise. Two small schooners, drawing about 7 feet when loaded, run between Rogue River and San Francisco. One or other of them visits the river about once a week. There is a steam tug at Gold Beach which takes these vessels over the bar. Mr. Hume has a small steamer of about the same draft, which he uses in his business.

These vessels do not go above a mile or two from the mouth. Freight rates to San Francisco are $5 to $8, according to bulk. Bark is $6 per cord.

The head of tide is about 4 miles above the mouth. Above this there has been no attempt at navigation, except in skiffs and canoes. The river is probably navigable for a small flat-bottomed steamer for about 20 miles during a portion of the year.

The inhabitants of Gold Beach regard the improvement of the upper river as chimerical. Most of them think that the entrance should be improved. Mr. Hume, who is the principal landowner and business man of the place, does not regard the river as worthy of improvement, except perhaps to the extent of dredging some of the shoals near Gold Beach, which have been formed by the débris from hydraulic mining in the mountains.

For the physical description of the river, I would refer to the report of Mr. Philip G. Eastwick, in the Chief of Engineers' Report for 1879, Part II, page 1858 *et seq.*, to which I have little to add. Since his examination was made the harbor near Gold Beach has shoaled considerably, owing to hydraulic mining, and the channel has shifted to the north shore. The schooners can no longer reach the town, and freight is carried across the river in lighters.

I do not regard the Rogue River as worthy of improvement. Navigation as far as Grants Pass is, I think, out of the question. I quote Mr. Eastwick's description of a portion of the river between Grants Pass and the mouth:

"From Greens Bend to Big Bend, a distance of 73 miles, the character of the river is that of a rapidly falling mountain stream. It is, with very few exceptions, narrow, rarely exceeding 150 feet in width, and frequently narrowing down to a width of from 25 to 50 feet; the waters in the narrows pouring with great velocity and rapid fall through the gorges. The fall of the river is, as may be expected, very great, though occasional long and slack-water levels are met with, more especially in the close cañons, where, in some cases, the river being very deep, the current was scarcely perceptible. At one place, 58 miles below Rock Point and 82 miles from the sea, the fall of the river over a distance of half a mile I estimate to be 30 to 40 feet. The average fall of these 73 miles of the river will, I think, be as great as 15 to 20 feet per mile.

"This part of the river abounds in rapids and waterfalls, seventy-two of them occurring in the first 39 miles of this division. At a number of these the fall in a very short distance is as great as 10 feet."

The lower 20 miles of the river are probably navigable for small vessels, but there seems to be no demand for such navigation and no improvement is called for.

With respect to the mouth of the river, I do not think that there is sufficient commerce to justify any expenditure. The present entrance is sufficient to accommodate any prospective trade.

It would undoubtedly benefit the town of Gold Beach if, by dredging or otherwise, the channel could be returned to its former position, but I do not think that the benefit would justify the expenditure.

Very respectfully, your obedient servant,

FRANCIS RAWN SHUNK,
First Lieut., Corps of Engineers.

Capt. T. W. SYMONS,
Corps of Engineers.

O

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 52.

LAKE PEPIN IN THE MISSISSIPPI RIVER.

LETTER

FROM

THE ACTING SECRETARY OF WAR.

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Lake Pepin in the Mississippi River.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. A. Mackenzie, Corps of Engineers, dated November 7, 1892, of a preliminary examination of Lake Pepin in the Mississippi River, as to whether additional harbors of refuge are necessary, and, if necessary, where the same should be located, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STAES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated November 7, 1892, by Maj. A. Mackenzie, Corps of Engineers, upon preliminary examination of Lake Pepin in the Mississippi River, as to whether additional harbors of refuge are necessary, and if necessary, where the same should be located, made in accordance with provisions of the river and harbor act approved July 13, 1892.

Maj. Mackenzie is of the opinion that additional harbors of refuge on Lake Pepin are necessary, and that the matter is worthy of considera-

tion by the General Government; but that one such harbor located on the Minnesota shore near Kings Coulee, will for the present at least serve all purposes of navigation. He also states that no additional special surveys are required in advance of the preparation of plans and estimates of cost of the work, and that such plans and estimates can be prepared from information now at hand or attainable in connection with the general work of improving the Mississippi River.

These views are concurred in by the division engineer, Col. O. M. Poe, Corps of Engineers, and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF LAKE PEPIN, WISCONSIN, WHETHER ADDITIONAL HARBORS OF REFUGE ARE NECESSARY, AND IF NECESSARY, WHERE THE SAME SHOULD BE LOCATED.

UNITED STATES ENGINEER OFFICE,
Rock Island, Ill., November 7, 1892.

GENERAL: The river and harbor act of July 13, 1892, provides for a preliminary examination of "Lake Pepin, Wisconsin, whether additional harbors of refuge are necessary, and, if necessary, where the same should be located." This examination was assigned to me by letter of the Chief of Engineers dated July 14, 1892.

To ascertain the opinion of navigators, a circular letter was sent out by me to all lumber firms, and packet and towing companies, and to all masters and pilots of the upper Mississippi River, asking for information as to necessity of additional harbors of refuge on Lake Pepin, and, if considered necessary, for their views as to location. In response to such letter one hundred or more replies have been received. Examination of the various localities suggested have been made by the crew of the snagboat.

A small number of the navigators consulted consider that the harbors now existing at Lake City on the Minnesota side, and at Stockholm on the Wisconsin side, are sufficient, and that no additional harbors are necessary; half a dozen recommend the establishment of a harbor on the Wisconsin side of the lake in the vicinity of North Pepin; thirty-five consider a harbor on the Minnesota shore in the vicinity of Kings Coulee most necessary, and thirty-seven favor construction of additional harbors on both sides of the lake.

The river and harbor act of March 3, 1881, required a "survey for harbors of refuge in Lake Pepin, at Stockholm, Wis., and Lake City, Minn." This survey was made by me and reported on under date of February 13, 1882, Report Chief of Engineers for 1882, pp. 1794–1797. From the report mentioned I quote the following, which explains the conditions existing on Lake Pepin, and gives an approximate idea of commerce interested:

> Lake Pepin is a wide stretch of the Mississippi River, about 20 miles in length, from 1½ to 3 miles in width, and of an average depth of about 35 feet. There is little or no current. Lake City and Stockholm are situated about midway between its upper and lower ends, the former on the western shore, the latter on the eastern.

Storms and high winds are very frequent in the lake during the season of navigation, and its surface becomes very rough in even a moderate gale.

The boats used in navigating the Upper Mississippi, both for general passenger and freight business and for rafting logs and lumber, are necessarily, on account of shoal water in the river, of such light construction and small depth of hull that they are unfit for rough weather and waves, and are consequently subjected to frequent delays and occasional danger to life and property.

On the western side there are three gravel points extending into the lake, which afford partial protection to boats and rafts in stormy weather, when they are able to reach their shelter.

On the eastern side, which is generally a rocky shore, there is no safe landing place available during the prevalence of high northerly or southerly winds.

The value of merchandise annually transported through the lake is variously estimated at from $250,000 to $500,000, besides about 150,000,000 feet of logs and lumber. There are no good landings or piers where freight can be conveniently shipped, and there also being so much risk the cost of transportation is greatly increased.

The construction of a safe harbor at some middle point in the lake, as at Stockholm or Lake City, or both, would be of material benefit to the interest of navigation.

(1) It would facilitate the loading and unloading of freight and diminish the risk of the same, thereby greatly lessening the cost of transportation; and,

(2) It would afford a place of refuge for steamboats with or without tows, and rafts of logs and lumber when unavoidably caught in the lake in a storm. At present steamboats with rafts are often delayed for days at the head of the lake, being afraid to attempt the entire passage, which occupies from six to seven hours, when, were there a safe harbor midway, they could frequently take advantage of a lull in the gale and easily and safely make the halfway point.

The harbors proposed for Lake City and Stockholm were built and have served their purpose well.

It is possible that, considering passenger and freight packets only, which move rapidly through the lake, and which, under present conditions of harbors, will not be exposed to danger of sudden storms for more than one hour, additional harbors of refuge may not at the present time be a great necessity, though even for this class of boats they would at times be very useful, and would reduce the probabilities of accidents involving loss of life and property.

With boats towing rafts the case is somewhat difficult. Accidents to rafts on Lake Pepin are not common, but they do occur, and long waitings for conditions favorable for navigating some portions of the lake are very common. The most dangerous portion of the lake is between Lake City and Reeds Landing, a distance of about 10 miles. In this section of the lake no artificial or partial harbors are found, and boats with rafts after passing the Lake City Harbor must remain exposed to the dangers of sudden storms on the lake for several hours. All the accidents to rafts of which I have record have occurred in this section of the lake, and nearly all of such would undoubtedly have been prevented by an artificial harbor properly located.

I am of the opinion that additional harbors of refuge on Lake Pepin are necessary and worthy of consideration by the General Government.

While additional harbors of refuge on both sides of the lake would serve a useful purpose, it is my opinion that one located on the Minnesota shore near Kings Coulee—which point is near the route of rafts and about halfway between Lake City and the foot of the lake—will, for the present at least, serve all purposes of navigation.

The construction of a harbor in the locality mentioned would be a matter of some difficulty, the depth of water being about 32 feet at low stage, and the exposure to the destructive action of ice being very great; but these difficulties were overcome at Lake City, where the same depth and conditions existed.

No additional special surveys are required in advance of the preparation of plans and estimates of cost of the work. Such plans and esti-

mates can be prepared from information now at hand or obtainable in connection with the general work of improving the Mississippi River.

Very respectfully, your obedient servant,

A. MACKENZIE,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., November 11, 1892.

Respectfully forwarded to the office of the Chief of Engineers.
I concur in the views of the district engineer.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 53.

ALSEA RIVER, OREGON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of inner navigation of Alsea River, Oregon.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Capt. Thos. W. Symons, Corps of Engineers, dated October 10, 1892, of a preliminary examination of inner navigation of Alsea River, Oregon, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated October 10, 1892, by Capt. Thomas W. Symons, Corps of Engineers, of preliminary examination of inner navigation of Alsea River, Oregon, made to comply with provisions of the river and harbor act approved July 13, 1892.

Capt. Symons is of the opinion that the river is worthy of improvement by the General Government, and estimates that the survey necessary to prepare project and plan of improvement will cost $1,000.

His views are concurred in by the Division Engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF INNER NAVIGATION OF ALSEA RIVER, OREGON.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, October 10, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of the "Inner Navigation of Alsea River, Oregon."

In my opinion the Alsea River is worthy of improvement by the General Government to a limited extent, as hereinafter designated.

The Alsea River rises in the Coast Range of mountains in Benton County, Oregon, about 30 miles in a direct line from the sea. It is from 50 to 55 miles in length from its source to where it empties into the Pacific Ocean, which point is about 12 miles south of the entrance to Yaquina Bay. Before mingling its waters with the ocean it widens out into Alsea Bay. The drainage area of the river and its tributaries is about 250 square miles. Alsea Bay and the portion of the river affected by the tides have an area of 3.7 square miles. About 45 miles from its mouth the Alsea River is divided into the North and South Forks, each about 10 miles in length. It also has a number of tributaries, the most important of which are Five Rivers, Lobster and Fall Creeks.

For purposes of consideration, the Alsea River can be properly divided into—

First. The portion from its source to the forks.

Second. The portion of about 27 miles in length from the forks to the head of tide water.

Third. The tidal portion of the river including the bay, which is about 18 miles in length.

The country drained by the Alsea River is essentially mountainous, and has at one time been covered by fine timber, but this was very largely destroyed by the great fires which swept over the country some forty or fifty years ago. Around the lower or tidal portion of the Alsea River and Bay there is a considerable amount of good agricultural land. Along the middle portion of the river, from the head of tide to the vicinity of the forks, the valley of the river is very narrow, averaging probably not more than 300 or 400 feet in width. The river throughout this section flows between hills from 500 to 600 feet in height. The chief agricultural section of the Alsea country is what is known as the Upper Alsea Valley, which consists of a considerable extent of bottom lands along the river for about 5 miles below the forks, and about the same distance up the North and South Forks.

The amount of agricultural land in this Upper Alsea Valley does not exceed 10 square miles, according to the report of Mr. John R. Savage, assistant engineer, who made the personal examination. This is a very isolated portion of the country, and transportation into and out of it is very difficult, and it is with the idea of benefiting it, that certain improvements in the river are hereinafter recommended. At present this Upper Alsea Valley is reached only by difficult mountain roads, each about 27 miles in length, crossing the Coast Range of mountains from Corvallis, or by another extremely difficult mountain road following down the Alsea River to tide water, a distance also of about 27 miles. So difficult and costly is the transportation by either of these roads that the inhabitants of the Upper Alsea Valley have been in the habit of sometimes building flat bottom boats, loading their products therein, and in the winter, when the river was swollen by the rains, floating them down to tide water, where they would necessarily have to abandon their boats because they could not be taken back up the river.

The improvement of this portion of the river is recommended to facilitate and render less dangerous this downstream flatboat navigation. The improvement would consist simply in the removal of some dangerous rocks, and the cleaning up along the banks of the overhanging brush and timbers which interfere more or less with the downstream high-water navigation aimed at.

The slope of the river is not known, but it is altogether probable that to provide an up and down stream navigation would render necessary an elaborate and expensive system of locks and dams. It is not considered that the interests involved would justify any such improvement at the present time. If a survey should be authorized to determine the cost of the work suggested it should be sufficiently elaborate to determine the slope of the river.

In the lower or tidal portion of the river there is generally a good depth of 5 to 6 feet at low water. There are, however, two places where the river shoals to a depth of 1 or 2 feet at low water; one of these bars is about one-fourth of a mile below Tidewater post-office, and is composed of gravel; the other bar is formed of sand and is located just about where the Alsea River widens out into Alsea Bay. If a survey would show that these bars could be removed without a large expenditure, I would recommend that they be removed. Their removal would enable the small coasters visiting the bay and river to reach the head of tide at all stages of the tide with more ease and regularity than if the shoals remained as they are at present.

I would, therefore, recommend that the Alsea River, from the forks to the mouth, be surveyed, with a view to improving the high-water downstream navigation of the river from the forks to tide water, and of determining the slope of the river, and from the head of tide to the mouth with a view to removing the bars in the tide-water section of the river, which now prevent boats from proceeding to the head of the tide at any stage of the tide. The cost of this survey is estimated at $1,000.

There is at present one small steamer, the *Mascotte*, drawing 2½ feet of water, plying on this portion of the river between Waldport and Tidewater post-office.

With the improvements suggested it is believed that the products of the Upper Alsea Valley could find a far better market by reaching Alsea Bay and being shipped therefrom in small coasters to Yaquina Bay or San Francisco, and that much good would result to the people living in the valley.

The population of the country tributary to Alsea River is variously estimated at from 1,200 to 2,000 souls. The Upper Alsea Valley contains about 500 people; the Lower Alsea Valley, about Tidewater post-office, 100 to 120, and the section about Alsea Bay from 600 to 700 souls.

The business of the country is very limited. There is one small store at the Alsea post-office near the forks of the river, and as far as known it is the only store in the Upper Alsea Valley. The only trading done at this store is in minor articles, as nearly all the farmers in this section haul their grain out to Corvallis and purchase their supplies at this latter point, or in Albany. There is another post-office at the head of the tide called Tidewater post-office, and on the south side of the bay there is a little village called Waldport. There are two small sawmills on the Upper Alsea River capable of cutting from 1,000 to 3,000 feet, B. M., per day, but as these mills only cut to supply local demand they are not running much of the time. One is situated on

the north fork about at the head of the Upper Alsea Valley, and the other mill is at the lower end of the same valley.

There is also one small gristmill running in connection with the last-named sawmill. There is one steam sawmill on Alsea Bay, with a capacity of about 10,000 feet, B. M., per day; one salmon cannery in active operation, and two which are not being operated.

In conclusion, I would state that, as outlined above, I believe this river worthy of improvement by the General Government, and estimate that to make a survey and report, including a project with estimate of cost of the improvement proposed, will cost about $1,000.

The examination of this river was made by Mr. John R. Savage, assistant engineer, and his report is herewith.

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division).

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., October 17, 1892.

Respectfully forwarded:

For reasons herein stated, the inner navigation of Alsea River, Oregon, is considered to be worthy of improvement by the General Government, over the portion intervening between the forks and the head of tide.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

REPORT OF MR. J. R. SAVAGE, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, September, 1892.

CAPTAIN: In pursuance of your verbal instructions, I left Portland, August 8, 1892, to make an examination in regard to the "inner navigation of the Alsea River, Oregon."

I went by rail to Corvallis, and there hired a private conveyance to take me over the mountains (Coast Range) and down the valley of the Alsea River, as this afforded me the best means of seeing the country and river.

The Alsea River rises in the Coast Range of mountains in Benton County, Oregon, and is from 50 to 55 miles in length from its source to the sea. It has numerous tributaries, the most important of which are Five Rivers, Lobster and Fall Creeks. About 45 miles from its mouth the Alsea River is divided into the North and South Forks, each from 5 to 10 miles in length.

The valley through which the Alsea River flows is a very narrow one for most of the distance from Alsea Bay to a point upstream, about 40 miles from the sea, the average width of the bottom lands available for agricultural purposes being probably not more than 300 feet.

Of course in some places there is quite an area of good land, but then again there are many places where there is no bottom land at all. The river throughout this section flows between hills from 500 to 600 feet in height, which are mostly bare except for the fern and burnt timber. Here and there some fairly good timber is seen on the bottom lands or in some protected cañon.

The Upper Alsea Valley is a stretch of bottom land on the upper portion of the river, about 10 miles in length, with an average width of perhaps half a mile. This valley extends about 5 miles above the forks on the North Fork and about the same distance below the forks. On the South Fork there is, in addition, a stretch of good

land extending for about 3 miles up beyond the forks. The hills inclosing the valley of the Upper Alsea River are not cultivated at all, as they rise very sharply to a height of 500 to 600 feet, but they are used to a small extent for grazing purposes. There is no timber of any value on the hills adjoining this belt of good agricultural land, but farther up the valleys, and on each side of the summit between the Alsea and Willamette valleys, for a distance of from 5 to 10 miles in width, there is a fine belt of fir timber with some cedar.

There is one small store at the Alsea post office, near the forks of the Alsea River, and it is the only store in the Upper Alsea Valley. The only trading done at this store is in the minor articles, as nearly all of the farmers in this section haul most of their grain out to Corvallis, and purchase their supplies at this latter point or in Albany.

The Upper Alsea Valley was settled about in 1853 and 1854, and since that time nearly all of the available ground has been steadily under cultivation, and in consequence the soil has deteriorated very much. Wheat is the main crop and it has been grown year in and year out. The average yield for that cereal is now about 18 bushels per acre, while in the early years the yield was often as high as 60 bushels to the acre. More than one-half of the entire crop is now hauled out over the mountains to Corvallis and sold or ground into flour for consumption in the valley of the Upper Alsea. There is a small gristmill about 2 miles below Alsea post-office, but it is not much patronized, as the farmers all claim that the miller does not make good flour, and hence they prefer to take their wheat to Corvallis to have it ground or to sell it as they think best. There is a certain proportion from one-eighth to one-fourth of the whole wheat crop shipped down the river on flatboats during the winter season, for use in the neighborhood of Alsea Bay for food for chickens, hogs, and other stock. In addition to the wheat crop are a number of articles raised for local use, such as hay, oats, vegetables, fruit, chickens, eggs, and dairy products. Bacon is also an important product, as some of that article is shipped to Alsea Bay for use there.

The valleys of Lobster Creek and Five Rivers, two tributaries of the Alsea River, contain considerable good agricultural, as well as grazing, land, but the country has just begun to be settled up, and when it is properly developed the outlet for this district will probably be somewhere near the head of tide. The Lobster country, which includes the valleys of Lobster Creek and Five Rivers, is very similar to the Upper Alsea Valley, but it is considerably smaller, as it contains less than one-half as much agricultural land as the latter section.

The Alsea River from its source to the head of tide is a regular mountain stream, composed of riffles and rapids and intermediate smooth spots. There are no falls to speak of but almost a constant succession of rapids, and the only fall of any size occurs just at the head of tide, where there is a fall of 3 or 4 feet at low stage of water.

It is only during the winter season or when the river is swollen by heavy rains to from 3 to 8 feet above its low-water stage that the navigation of the Upper Alsea takes place. The only boats used are small scows, drawing a foot or a little more, which are built as cheaply as possible by the farmers, as they have to be abandoned after being floated down the river, as it would be almost impossible to get any boat up the river. These boats are usually from 5 to 8 feet in breadth, and from 15 to 25 feet long, although scows or flatboats 10 feet wide and 36 feet long have been taken down successfully. When the dangerous nature of this style of navigation is considered, it is remarkable that so few accidents have occurred, for here and there are scattered rocks and bowlders that are a constant menace to navigation. The upper portion of the river near the forks has a gravel bottom generally, but farther down the river bottom is composed almost entirely of rocks, the stratification of which would seem to be nearly parallel to the surface of the water. The depth of water at low-water stage in this section of the river is usually about 1 foot except on the riffles, of course, where it is shoaler. The river at high water is also sometimes used for running some few logs. A small amount of work in the way of improving this upper section of the river has already been done by the settlers by blowing up some few rocks. The total cost, however, including time and materials, probably did not exceed $100 or $150.

There are two wagon roads leading into the Upper Alsea Valley from the Willamette Valley, one following the North Fork of the Alsea River, crossing the mountains and leading into Corvallis through Philomath, and the other following the South Fork and after crossing the Coast Range passing through Monroe to Corvallis. From the Alsea post-office to Corvallis by the North Fork road is a distance of about 27 miles, while the distance between the same points is about 4 or 5 miles farther by way of the South Fork. The North Fork road is the one generally used during the summer months, but it becomes almost impassable in winter, and then the road following the South Fork has most of the travel. These roads are in very poor condition, even for mountain roads, and having once passed over them it is easy to understand why the freight from Corvallis into the Upper Alsea Valley should be as high as one-half to 1 cent per pound. There is also a wagon road extending down

the valley of the Alsea River from Alsea post-office to Tidewater post-office, a distance of 27 miles. This wagon road is in very poor condition, and runs mostly through the bottom lands or along the foot of the hills on the right bank of the river, but there are long hauls over the hills at two points of its length where the river makes curves to the south.

The total population of the whole of the country tributary to the Alsea River is, as nearly as I could ascertain, from 1,200 to 1,400. The Upper Alsea Valley country contains 360 to 440 people; the Lobster country from 130 to 200; the Lower Alsea Valley around Tidewater post-office from 110 to 120, and the section around Alsea Bay, as far north as Beaver Creek, from 600 to 640 souls. These figures have been arrived at from a knowledge of the number of voters in each precinct, and also from scattered information obtained for the last census.

There are two small sawmills now on the Alsea River that might cut, if pushed, from 1,000 to 3,000 feet per day, but as these mills only cut to supply local demand, they are not running a quarter of the time. One is situated on the North Fork about at the head of the Upper Alsea Valley, and the other mill is at the lower end of the same valley. The only gristmill in the whole valley is a small one run in connection with the lower sawmill. There is also a steam sawmill on Alsea Bay, with a capacity of about 8,000 or 10,000 feet per day; one salmon cannery in active operation, and a couple of deserted ones as well.

The settlers in the Upper Alsea Valley have no special desire to have the river improved for winter navigation without there should be some sort of a market on Alsea Bay for their produce, which there is not at present, outside of a purely local demand for eggs, butter, bacon, and a small portion of the grain crop. It looks to me, from an examination merely, that the portions of the Alsea River from the forks to the head of tide could be improved sufficiently by the expenditure of a comparatively small sum of money, to allow of a much safer and more extended high-water navigation of the river. And with such improved facilities it seems to me perfectly reasonable to expect that the products of the Upper Alsea Valley could be shipped to some market—most probably Portland or San Francisco, by way of Yaquina—on the small steam coasters to considerable more advantage than they could be hauled to Corvallis or other railroad points.

The improvement of the river from the bay to tidewater was urged by some of the residents living below the head of tide. In the section of the river from the head of tide, 2 miles above Tidewater post-office, to the bay, there is a good depth of water except at two points where bars have been formed. One of these bars is about one-fourth of a mile below Tidewater post-office, and is composed of gravel, principally, over which there is a depth of about 2 feet at low water. The other bar is formed of sand and is located just about where the Alsea River widens out into Alsea Bay, and has a depth at low water of from 12 to 18 inches. The depth on this bar could probably be increased by closing up the entrance to the north channel of Alsea Bay, which is just above this bar. I can see nothing, however, to warrant any improvement of this tidal section of the river, as the small coasters could, if necessary, cross these two bars at high water if there were any freight shipments to justify them in proceeding up the river. There is a very small amount of good land on this tidal portion of the river, outside of the tide-flat near the bay, and I consider it improbable that there will be any call for vessels to proceed up the Alsea River for some time to come. The mail from Waldport to Tidewater post-office is carried up the bay and river by a small steamboat drawing about 2½ feet.

When it is considered that all, or in any case nearly all, of the products of the whole Alsea Valley could be loaded into one big grain ship of about 2,000 tons burden, it will be seen, I think, that no very extensive improvements of this river would be justified. The improvements required on the Upper Alsea River would consist in the blasting out of some of the more dangerous rocks, and the cleaning up along the banks of the overhanging brush and timber, which interfere more or less with the winter navigation.

I would recommend that a more thorough examination and a partial survey of the particularly bad portions of the upper river be made to determine the least amount that could be profitably expended in improving the upper river. The cost of such an examination and survey should not exceed $1,000. It was urged by some of the residents that the channel of Alsea Bay should be buoyed as far as Waldport, and I consider that this should be done, as strange vessels often cross the bar all right, but go aground afterwards from not knowing the channels in the bay.

Very respectfully, your obedient servant.

J. R. SAVAGE,
Assistant Engineer.

Capt. T. W. SYMONS,
Corps of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 54.

CAPE CANAVERAL, FLORIDA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of harbor at Cape Canaveral, Florida.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. J. C. Mallery, Corps of Engineers, dated September 28, 1892, of a preliminary examination of harbor at Cape Canaveral, Florida, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated September 28, 1892, by Maj. J. C. Mallery, Corps of Engineers, of the results of a preliminary examination of harbor at Cape Canaveral, Florida, made to comply with provisions of the river and harbor act approved July 13, 1892.

Maj. Mallery states that the harbor at Cape Canaveral is worthy of improvement and is of opinion that $2,500 will be required to pay the ex-

penses of surveys necessary to the preparation of project and plan with estimate of cost of improvement proposed.

Col. Wm. P. Craighill, Corps of Engineers, the Division Engineer, in forwarding Maj. Mallery's report, remarks that he considers a harbor at Cape Canaveral a very desirable improvement and worthy to be undertaken by the United States, unless the proposed survey should show it to be a work of very great expense out of proportion to the interests involved.

I concur in Maj. Mallery's opinion that the locality is worthy of improvement.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HARBOR AT CAPE CANAVERAL, FLORIDA.

UNITED STATES ENGINEER OFFICE,
Asheville, N. C., September 28, 1892.

GENERAL: In compliance with department letter of July 20, 1892, I have the honor to report that a harbor at Cape Canaveral, Florida, is worthy of improvement and for the following reasons:

(1) There is no deep-water harbor of the east coast of Florida or in fact the southern coast south of Port Royal, N. C.

(2) A harbor at Cape Canaveral would be of great advantage to the agricultural and phosphate interests of Florida, to the Navy, and to the merchant marine.

The following table gives the number of vessels damaged or lost, the value of the property lost, and the number of lives lost on east coast of Florida from October, 1865, to March, 1892:

[From data furnished by Thos. S. Eells, underwriter's agent.]

Localities.	No.	Property reported lost.	Lives reported lost.
Near Fernandina entrance	15	$410,000	None.
Near Nassau entrance	3	55,000	Do.
Near St. Johns entrance	26	458,000	18
Near St. Augustine entrance	14	180,000	None.
Near Cape Canaveral entrance*	32	1,567,800	96
Total	90	2,670,800	114

* Includes vessels damaged or lost between Mosquito Inlet and Cape Florida.

Only one vessel has grounded on St. Johns Bar since 1885.

Of the thirty-two vessels lost near Cape Canaveral six were uninsured, and their value is not included in the above list.

In addition to the ninety vessels in the above list, eight were lost off the east Florida coast at unknown points. The value of these is not included in the list.

(3) The site is favorable in that it is protected from the northeast gales, which are the most severe and of the longest duration. It is

exposed to the southeast storms, which, though severe at times, do not last for a long time.

(4) The holding ground at the anchorage is good.

(5) The Jacksonville, St. Augustine and Halifax River Railroad is building at present to Rockledge, 12 miles from Cape Canaveral, and I am informed that a railroad will be built to Cape Canaveral as soon as Congress makes an appropriation for the harbor.

The following are the principal objections:

(1) Great expense, as a short breakwater will not shut off the swell of the ocean.

(2) The shifting character of the beach and bottom.

The ocean has been washing away the beach opposite Cape Canaveral light-house to such an extent that the light-house engineer has been obliged to protect the light-house site, and Congress has appropriated money to move the light-house to a secure location.

(3) There are no buildings, roads, or materials suitable for the work in the neighborhood, and the present anchorage under the lee of Cape Canaveral is so insecure that the risk of bringing materials by sea would be much increased.

The estimate for a survey for a harbor is $2,500.

The following-named papers furnished by Mr. Henry H. Harrison are respectfully submitted herewith:

(*a*) Letter of Mr. Henry H. Harrison.
(*b*) Petition of the steamship lines of New York and the Gulf ports.
(*c*) Extension of the railroad system of South Florida to Canaveral.
(*d*) Memorial, Chamber of Commerce and Industry of Louisiana.

Very respectfully, your obedient servant,

J. C. MALLERY,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. William P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[Third indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., October 11, 1892.

Respectfully submitted to the Chief of Engineers.

For the reasons stated by the District Engineer I consider a harbor at Cape Canaveral a very desirable improvement and worthy to be undertaken by the United States unless the proposed survey should show it to be a work of very great expense, out of proportion to the interests involved.

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

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a. LETTER OF MR. HENRY H. HARRISON, COMMISSIONER.

TALLAHASSEE, FLA., *August 13, 1892.*

DEAR SIR: Referring to your letter of July 28, I herewith inclose certified copies of the resolutions adopted by the chamber of commerce, board of trade, and board of underwriters of New Orleans in favor of a national harbor of refuge at Canaveral, Fla.

The officers and leading members of the Maritime Association of New Orleans and of the chamber of commerce and the cotton exchange of Mobile have undertaken to have favorable action taken by those bodies; but I have not yet received the papers.

I also inclose certified copies of the petitions of the representatives of all the steamers plying between New York and the gulf ports and between the gulf ports and foreign countries, and of the great railroad systems which reach the gulf ports. These represent a very large percentage of the total coastwise and foreign commerce of the United States.

Both houses of the legislature of Louisiana adopted a memorial to Congress in favor of this harbor of refuge, but I have not received a certified copy yet from the secretary of state of Louisiana. Whenever these documents are received they will be filed in your office.

The business men of New York have promised a memorial from that State at the next session of their legislature.

Memoranda as to railroad extensions to Canaveral and business of the Indian River section are submitted herewith in reply to your inquiries.

I expect to call at your office in a short time and am ready to exhibit the originals of all these memorials, petitions, resolutions, etc. If the copies certified by myself are not such "certified copies" as you desire, I would suggest that you cause proper copies to be taken in your office as the originals are to be laid before Congress.

The construction of the railroad from Kissimmee to Canaveral is simply waiting upon the action of Congress in this matter, and it is greatly desired by all of our people that the report and estimates should be laid before Congress at its meeting in December next, so that the promised appropriation can be obtained next winter.

Your attention is respectfully invited to the recommendation of the Navy Department and those of the representatives of the American and foreign merchant marine, and to the great importance both to the national Navy and to navigation and commerce of an accessible deep-water harbor and coaling station at the Atlantic entrance to the Straits of Florida.

These documents are submitted and these statements made under authority of my commission from the State of Florida and the south Florida counties. If you desire further evidence of the importance of this improvement to the people of south Florida, the boards of county commissioners of those counties will be glad to have an opportunity to confer with you at Titusville, Kissimmee, and Orlando.

Respectfully,

HENRY H. HARRISON,
Commissioner.

Maj. J. C. MALLERY,
Corps of Engineers, U. S. A.

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b. PETITION OF THE STEAMSHIP LINES OF NEW YORK AND THE GULF PORTS.

The undersigned, operating the lines of steamships plying between New York and the Gulf of Mexico, respectfully urge the great importance to navigation and commerce of constructing a breakwater and national harbor of refuge in the bight of Canaveral, according to the prayer of the memorial of the State of Florida and the recommendation of the Navy Department.

N. Y. & Cuba M. S. S. Co. by Henry P. Booth, presdt.; C. H. Mallory & Co., agents Mallory S. S. Lines; Saml. H. Seaman, genl. agt. Cromwell S. S. Co.; J. T. Van Sickle, agt. Morgan Line Str.; J. M. Ceballos & Co., agents Spanish Translantic Co.; Albert Kinkle, general manager N. Y. and Gulf S. S. Co.

We concur in the above: Wm. J. Sanders, agent West India and Pacific S. S. Co.; Silas Weeks & Co., agts. Miss. and Dom. S. S. Co.; A. K. Milles, Meletta & Co., agents "Elgin," "Hamburg," "Packet," "Perillos," and "Lompart" Lines S. S.; American Trading Society, limited; New Orleans Agency, E. Diered, agents La Flecha Line of S. S., assistant manager; p. pro Lucas E. Moore & Co., agents Hall Line Steamers; W. E. Raymond; p. p. S. V. Fornaris & Co., agts. French Commercial Line of Steamships, P. J. Esnard; Alfred Le Blanc, agent Harrison Line Steamers; E. E. Prevost, gen. so. agt., Cie Gle Translantique; W. J. Hammond & Co., agents, "Ross," "Thomson," "Dent," and "Brown" Lines Steamers; Alf. Moulton & Co., agents Cromwell S. S. Co.; Ross, Howe & Merrow, S. S. agents.

The Senate and House of Representatives of the United States.

PETITION OF THE SOUTHERN RAILROAD SYSTEMS CONNECTING WITH THE GULF PORTS.

The undersigned, operating the lines of steamships plying between New York and the Gulf of Mexico, respectfully urge the great importance to navigation and commerce of constructing a breakwater and national harbor of refuge in the bight of Canaveral, according to the prayer of the memorial of the State of Florida and the recommendation of the Navy Department.

Southern Pacific Co., per A. C. Hutchinson, agt.; Morgan, La. and Texas R.R. and Steamship Co., per A. C. Hutchinson, presdt.

We concur in the above: Texas and Pacific Ry. Co., E. B. Wheelock, genl. agt.; F. C. Shephard, genl. agt. Louisville and Nashville Railroad.

The Senate and House of Representatives of the United States.

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c. EXTENSION OF THE RAILROAD SYSTEM OF SOUTH FLORIDA TO CANAVERAL.

Memorandum of Mr. Henry H. Harrison.

AUGUST 13, 1892.

The Jacksonville, St. Augustine and Halifax River Railroad is now building to Rockledge, within 12 miles of Canaveral, and will be completed by January 1, 1893. It will be extended in time to Biscayne Bay.

The Jacksonville, Tampa and Key West Railway system terminates at Titusville, 25 miles from Canaveral. A charter has been granted to an allied company to build a railroad from Titusville to Cape Florida, with branches to Canaveral and New Smyrna.

The Canaveral and South Florida Railroad Company has been chartered to build a railroad from Kissimmee to Canaveral, a distance of 55 miles. Twelve miles of this have already been built by the Sugar Belt Railway Company. The Canaveral and South Florida Railroad Company is backed by strong capitalists and railroad men of New York, Philadelphia, and Chicago, and is ready to go ahead and build its road as soon as Congress makes an appropriation for the Canaveral breakwater.

This railroad will connect at Kissimmee with the South Florida Railway and the Kissimmee River. It has made arrangements with the Florida Midland Railway to use its track, and will thus connect with the Florida Midland at Kissimmee, with the Orange Belt Railway at Clarkona, and with the Florida Central and Peninsular Railway system at Apopka.

It will thus bisect every important railroad in south Florida and offer all of them a shorter and cheaper outlet, quicker time, and lower rates than are possible by any existing route to the great Eastern distributing markets.

I am authorized by the directors of this railroad company to say that the road will be built as soon as an appropriation is made for the breakwater.

The consensus of opinion among south Florida producers and shippers is that at least one-third of the fruit and trucks will go out via Canaveral, and that the other two-thirds will be benefited in two ways, viz:

First. The competition of Canaveral will reduce the present exorbitant rates via Jacksonville, etc.; and

Second. The same competition will increase the facilities for handling perishable freights and cause a better service, and will prevent the heavy losses now experienced every busy season from the overcrowding of the existing lines.

TRAFFIC OF INDIAN RIVER, HALIFAX RIVER, ETC

Memorandum of Mr. Henry H. Harrison.

A statement by the tax-assesor of Brevard County is submitted herewith. It shows that the fruits and trucks shipped the past year amounted in value to $529,962 at home. The imports of goods and building material were worth as much as the exports or probably more.

The business of Dade County was also large, but I have not yet obtained the figures.

I have applied for a statement of the business done by the Indian River division of the I. T. & K. W. Railway, the South Florida Railway, the A. & W. Railway, and the Halifax division of the I. St. A. & H. R. R. R., as all this business will go to Canaveral as soon as the port is opened. These statements have not yet been received. They will be submitted upon arrival.

An estimate of the effect of the opening of the port of Canaveral can easily be made.

The orange crop of Florida last year was some 3,600,000 boxes. Its other fruits and trucks were equal to about 3,600,000 crates.

The rate on oranges from Havana, Cuba, to New York is 25 cents per box. From Jacksonville to New York, 40 cents; from Kissimmee, 72 cents; from Rockledge, 80 cents. Five lines of steamers between the Gulf ports and New York pass regularly within sight of Canaveral, and will call there both ways as soon as the breakwater is built. They have agreed to give the same rate from Canaveral as from Havana, viz, 25 cents per box. The Canaveral and South Florida Railroad will make a rate of 10 cents per box from Rockledge and Kissimmee, saving 45 cents per box from Rockledge and 37 cents from Kissimmee.

The first effect of the opening of the Canaveral route will be to reduce the rate from Jacksonville to New York from 40 cents to 25 cents.

If, therefore, one-third of the fruits and trucks go out via Canaveral, say 2,400,000 boxes, at an average reduction in freight of 30 cents per box the shippers save $720,000 per annum, and the reduction of 15 cents per box on the remaining 3,600,000 boxes which go East via Jacksonville, etc., saves them $540,000 more—$1,260,000. It must also be remembered, as stated by the president of the New York Fruit Exchange, that the losses sustained at present from unnecessary delays in transportation cost the shippers as much as the whole amount of the freight bills, and that most of this would be avoided if the direct Canaveral route was opened.

Another important consideration is that in view of the gluts in the Northern markets the Florida shippers have been trying to build up a direct export of oranges to England and Europe generally. Shipments are made at present via New York, which involves too much delay and expense. It is proposed to run special steamers from Jacksonville; but these would be small, and only sail at intervals.

The Jacksonville auction-house market, which has charge of this matter, states that Canaveral is the best port for this export of oranges.

As soon as Canaveral is opened it will be the coaling outport for New Orleans, etc., and the one hundred and fifty steamers engaged in the Gulf cotton trade will call there almost daily, affording (with the phosphate steamers also) constant and direct communication with England, France, and Germany, and a rate not exceeding 40 cents per box. This is a matter of vast importance to Florida.

Besides these savings on exports, it must be remembered that most of the goods consumed in south Florida come from New York.

With Canaveral open, the people of south Florida will get their goods landed at home for what it costs now to land them in Savannah or Jacksonville, and most of the exorbitant charges on the present long overland haul will be saved to them.

The number of young orange trees returned by the assessor in Brevard County is more than double the number of bearing trees. The area of new pineapple plantation is at least five times that of those in bearing. It is therefore evident that in a short time the exports will be three times as much as at present.

The increase in the production of trucks under favorable conditions can hardly be estimated. Not over 1 per cent of Brevard County is now in cultivation all told. Production is discouraged and limited by high freights and heavy losses from delay in transit. If the port of Canaveral is opened, time and freights will be reduced one-half, profits will be largely increased, and production will be greatly stimulated. South Florida depends entirely upon agriculture; it has neither manufactures nor commerce. At present agriculture is unprofitable for want of cheap and rapid transportation. Give water transportation to New York, and a great increase of production will follow. If Brevard and Dade counties alone, to say nothing of Osceola, Polk, etc., now export fruits and trucks worth about $1,000,000 at home with about 1 per cent of their soil in cultivation, what will be the value of their export with 50 per cent in cultivation? Such a development will follow cheap transportation; but it is impossible while they are confined to the present circuitous and expensive overland routes. It should be remembered that one acre in Florida in oranges, pineapples, cabbages, etc., yields nearly a carload of freight, or as much as 25 acres of Western wheat.

Respectfully submitted.

HENRY H. HARRISON.

STATEMENT BY THE TAX-ASSESSOR OF BREVARD COUNTY, FLORIDA.

The list given below is not complete, but covers more than 95 per cent of the productions of the county for the year ending July 1, 1892:

Name of product.	Acres.	Bushels.	Value.
Corn	141	1,745	$1,602
Oats	13	190	108
Sweet potatoes	59	7,411	5,889
Rice	4	105	100
Field pease	54½	650	775
Peanuts	1	20	20
Irish potatoes	18½	1,152	2,224
Peaches, 205 trees	.....	152	305
Sugar cane, 42 acres, 397 barrels sirup	.....	.....	7,260
Hay, 28 acres, 38 tons	.....	.....	660
Tobacco, half acre, 904 pounds	.....	.....	105
Honey, 517 hives bees, 34,340 pounds	.....	.....	2,821
Cabbage, 67 acres, 8,302 barrels	.....	.....	7,740
Squashes, ¾ acre, 84 barrels	.....	.....	170
Egg plant, ¾ acre, 30 barrels	.....	.....	265
Grape fruit, 132 trees, 50 barrels	.....	.....	167
Oranges, 99,486 bearing trees, 165,532 boxes	.....	.....	293,330
201,611 nonbearing trees	.....	.....	.....
Lemons, bearing trees 1,697, 17,343 boxes	.....	.....	3,155
21,951 nonbearing trees	.....	.....	.....
Limes, 646 trees, 343 boxes	.....	.....	486
Pineapples, 2,268,850 apples	.....	.....	144,865
Bananas, 17,502 bunches	.....	.....	10,268
Cocoanuts, 631 trees, 560 nuts	.....	.....	56
Tomatoes, 154 acres, 16,406 boxes	.....	.....	27,307
Cucumbers, 1 acre, 60 crates	.....	.....	300
Beans, 166 acres, 19,679 crates	.....	.....	39,885
Strawberries, 1¼ acres, 1,000 quarts	.....	.....	300
Grapes, 2½ acres	.....	.....	800
Wine, 500 gallons	.....	.....	500
Horses, 165	.....	.....	16,390
Mules, 66	.....	.....	6,815
Stock cattle, 699	.....	.....	36,535
Hogs, 1,384	.....	.....	1,890
Chickens, 3,679	.....	.....	1,757
Ducks, 67	.....	.....	72
Turkeys, 144	.....	.....	174
Eggs, 3,644 dozen	.....	.....	7,691
Milch cows, 262	.....	.....	4,930
Milk, 40,810 gallons	.....	.....	13,354
Butter, 5,110 pounds	.....	.....	1,570

d. RESOLUTION OF CHAMBER OF COMMERCE AND INDUSTRY OF LOUISIANA.

At a meeting of the Chamber of Commerce and Industry of Louisiana, held at the rooms of the chamber, Nos. 120 and 122 Common street, at 8 p. m., on Thursday, June 23, 1892, the following preamble and resolution were unanimously adopted:

Whereas, in the opinion of this chamber, it is one of the important duties of this Government to provide, at all needed places, ports of refuge, whereby life may be preserved and loss of property avoided; and

Whereas there is no port or other place of refuge for large vessels on the coast of Florida for many hundreds of miles south of Fernandina, practically until Key West be reached, in consequence whereof a great danger to all the commerce of these seas exists; therefore, be it

Resolved, That this chamber respectfully urges upon the Government of the United States the importance to navigation and commerce of constructing a national harbor of refuge in the Bight of Canaveral, according to the prayer of the memorial of the State of Florida, and the recommendation of the Navy Department.

[SEAL.] ROBERT BLEAKLEY,
Secretary.

RESOLUTION OF BOARD OF UNDERWRITERS.

OFFICE OF BOARD OF UNDERWRITERS,
No. 136 Gravier street, New Orleans, June 21, 1892.

Whereas, in the opinion of this body, it is one of the important duties of this Government to provide, at all needed places, ports of refuge, whereby life may be preserved and loss of property avoided; and

Whereas there is no port or other place of refuge for large vessels on the coast of Florida for many hundreds of miles south of Fernandina, practically until Key West be reached, in consequence whereof a great danger to all the commerce of these seas exists; therefore, be it

Resolved, That this body respectfully urges upon the Government of the United States the importance to navigation and commerce of constructing a national harbor of refuge in the Bight of Canaveral, according to the prayer of the memorial of the State of Florida, and the recommendation of the Navy Department.

L. M. FINLEY, *V. P.*

GEORGE MATHER, *Secretary.*

RESOLUTIONS OF NEW ORLEANS BOARD OF TRADE.

NEW ORLEANS BOARD OF TRADE, LIMITED,
New Orleans, June 21, 1892.

The following resolutions were to-day favorably considered by the president and executive committee of the New Orleans Board of Trade, limited:

Whereas, in the opinion of this body, it is one of the important duties of this Government to provide, at all needed places, ports of refuge, whereby life may be preserved and loss of property may be avoided; and

Whereas, there is no port or other place of refuge for large vessels on the coast of Florida for many hundreds of miles south of Fernandina, practically until Key West be reached, in consequence whereof a great danger to all the commerce of these seas exists; therefore, be it

Resolved, That this body respectfully urges upon the Government of the United States the importance to navigation and commerce of constructing a national harbor of refuge in the Bight of Canaveral, according to the prayer of the memorial of the State of Florida and the recommendation of the Navy Department.

[SEAL.]

F. J. ODENDAHL,
President.

HY. H. SMITH, *Secretary.*

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 55.

EAST BOSTON CHANNEL, MASSACHUSETTS.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of East Boston Channel, Massachusetts.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. S. M. Mansfield, Corps of Engineers, dated October 27, 1892, of a preliminary examination of East Boston Channel, Massachusetts, from the southeasterly line of the location of the Boston, Revere Beach and Lynn Railroad to the channel at Jeffries Point, so called, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated October 27, 1892, by Lieut. Col. S. M. Mansfield, Corps of Engineers, of the results of a preliminary examination of East Boston Channel, from the southeasterly line of the location of the Boston, Revere Beach and Lynn Railroad to the channel at Jeffries Point, so called, made to comply with the provisions of the river and harbor act approved July 13, 1892.

Lieut. Col. Mansfield is of opinion that the locality is worthy of im-

provement by the General Government, and he states that it will require $200 to make a survey and report, including project, with estimate of cost of improvement proposed.

I concur in his views.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF EAST BOSTON CHANNEL, MASSACHUSETTS, FROM THE SOUTHEASTERLY LINE OF THE LOCATION OF THE BOSTON, REVERE BEACH AND LYNN RAILROAD TO THE CHANNEL AT JEFFRIES POINT, SO CALLED.

UNITED STATES ENGINEER OFFICE,
Boston, Mass., October 27, 1892.

GENERAL: In accordance with the requirements of letter from your office of July 14, 1892, I have the honor to submit the following report upon the examination of East Boston Channel, from the southeasterly line of the location of the Boston, Revere Beach and Lynn Railroad to the channel at Jeffries Point, so called, as provided in section 6 of the river and harbor act approved July 13, 1892.

The immediate interests to be subserved are the owners and occupants of several wharves around and between Jeffries Point and the railroad. The principal business carried on about Jeffries Point is the curing of fish, and the locality is the only one in Boston Harbor fitted for this purpose.

When vessels of lighter draft than at present were engaged in the trade, this interest was of a very considerable importance and apparently is now, though conducted with great difficulty, owing solely to the lack of deep-water transportation.

Coal in considerable quantities was formerly delivered in vessels to meet the manufacturing demands of the Boston Forge Company, at their wharf adjoining the railroad, and to the Bardwell, Anderson & Company, furniture manufacturers, which has now, for lack of a channel of deep water, to be teamed across the peninsula at a burdensome expense.

It is impossible to give any exact statement of the business of this locality. The Boston Forge Company is the largest concern, and state that they have done a business of $10,000,000 during the past twenty-seven years, and now employ about one hundred men, with $150,000 invested in their plant. Their water front is at present useless to them.

I inclose copies of letters of the Boston Forge Company and of the Bay State Packing Company and others interested in the development of this district, and respectfully refer to them for information respecting the present and prospective commerce. Undoubtedly this region would increase in value and commercial importance were a channel of deep water dredged along its front sufficient to afford access to vessels of moderate draft.

The range of the tide is about 10 feet. At low water the area, which is a portion of what is called Noddle Island Flats, is almost entirely bare and lies within the established harbor lines of the port of Boston.

I am of opinion the district is worthy of improvement by the General Government.

It will require $200 to enable me to make a survey and report, including a project, with estimate of the cost of the proposed improvement.

Very respectfully, your obedient servant,

S. M. MANSFIELD,
Lieutenant-Colonel of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

LETTER OF GEORGE C. FITZPATRICK & CO.

[Bay State Packing Company, Geo. C. Fitzpatrick & Co., proprietors.]

EAST BOSTON, *October 21, 1892.*

DEAR SIR: The subject of a channel around Jeffries Point, East Boston, is a vital one, in that it affects the commerce of Boston to a great extent, and has also, in a large measure, a bearing on the proper development of the fishing, lumber, and coal interests of Boston, more particularly the former. The advantages to be gained by such an improvement are many and varied.

We take the liberty of naming a few of them, showing, as they most surely do, the great improvements and development it would make in the industries and commerce of Boston and East Boston, which, for some years past, has been on the decrease.

As the business carried on around Jeffries Point is, more than anything else, the fish business, it seems to us that it might appropriately rank first on the list of industries. With the present condition of things it is impossible for an ordinary fishing vessel to come to any wharf on the point. A shallow vessel might perhaps come up all right, but the general run of vessels are now being built after the Burgess type, of deep draft of water. This state of affairs in numberless cases sends fish that might be used in Boston to Gloucester, owing to lack of a proper channel to bring the vessel to the wharves of the East Boston curers.

The lumber interests, which are now concentrated on the westerly and northwesterly side of the island, could be extended to the point, there being large tracts of land now vacant which could be used for the building of sheds and warehouses.

Also, in the case of the coal industry: Two large concerns on Jeffries Point, the Boston Forge Company and Bardwell & Anderson, use hundreds of tons of coal annually, which all has to be hauled to their sheds on teams, where if a channel were dredged, barges might come to their wharves and discharge.

We have spoken with different men in the trade associations of Boston, notably the president of the Boston Chamber of Commerce, men directly interested in the improvement of the commerce and resources of the city of Boston, and they have, one and all, agreed that a channel such as we mention would be of almost incalculable benefit to Boston. The very high price of wharf property in the city proper would prevent the fish-curing industry as an investment being a profitable one, whereas the wharf property on Jeffries Point being cheap enables an industry to get a start, and if proper improvements were made, the firms now engaged in it could more than double their business, owing to the fine railroad facilities which are afforded by the near vicinity to the grand junction of the Boston and Albany and Boston and Maine railroads.

We think the points we have enumerated cover ground enough, so that you may understand the manner in which such a project is thought of by those men who have the improvement of Boston at heart, and trust you will give this matter your serious consideration.

We remain, yours, very respectfully,

GEO. C. FITZPATRICK & CO.

Col. MANSFIELD,
Lieutenant-Colonel, Engineers.

LETTER OF GEORGE C. FITZPATRICK & CO.

[Bay State Packing Company, Geo. C. Fitzpatrick & Co., proprietors.]

EAST BOSTON, *October 15, 1892.*

DEAR SIR: We are engaged in the salt-fish business in East Boston and own a wharf property on Maverick street, containing 66,000 feet of land. We handle about $300,000 worth of goods a year and are obliged to pay teaming on all of this, an expense which would be almost entirely avoided had we a channel in the rear of our wharf where vessels might come alongside and land their fish. We could handle all the salt we use in like manner, where we now pay cartage on that. Had we a

channel we would very soon be able to increase our business, thereby necessitating increasing our wharf area. We could engage extensively in the salt herring trade—send vessels to Newfoundland in the fall, for trips. You can readily see the great advantage a channel would be to us. It means that we could double our business, and, where we now employ from twenty-five to thirty-five men, could give employment to many more. It would mean, we might say, like opening a new market for fish. Vessels that now take their trips to Gloucester would sell here if suitable accommodations could be provided for them in the way of berths and the like. You will confer a favor and numberless benefits to ourselves and the other firms engaged in the trade in this part of East Boston by doing all in your power to further our petition.

We remain, very respectfully, yours,

GEO. C. FITZPATRICK & Co.

Col. MANSFIELD,
Colonel, Engineers.

LETTER OF JAMES EMERY, JR., & CO.

BOSTON, MASS., *October 18, 1892.*

DEAR SIR: We are doing a large amount of salt-fish business on Bowker's wharf, East Boston, and owing to the water in the channel being so shallow, we find it impossible to get our fishing vessels alongside of the wharf to discharge their cargoes. We would respectfully suggest that the channel be dredged out so that the vessels can be got up to the wharf. By so doing we think it would be a great help to the fish business in East Boston.

Very respectfully, yours,

JAMES EMERY, JR., & Co.

Col. MANSFIELD.

LETTER OF R. G. LOFTUS & CO.

BOSTON, MASS., *October 17, 1892.*

DEAR SIR: We are engaged in the salt-fish business, and handle about $150,000 worth of fish a year. We believe that if a suitable channel was dredged our business would more than double. At the present time you can not bring any of the modern fishing vessels to any of the wharves, which fact considerably interferes with the proper development of the salt-fish industry of Boston. We sincerely hope that a channel will be dredged.

Yours truly,

R. G. LOFTUS & Co.

Col. MANSFIELD,
Lieutenant-Colonel of Engineers.

LETTER OF BARDWELL, ANDERSON & CO.

BOSTON, *October 17, 1892.*

DEAR SIR: Replying to your favor of recent date, would say that a ship channel would be of great benefit to the commerce of Boston. We could increase our business if we could land on our property the lumber and coal we use, as well as deliver our product direct to vessels.

Respectfully,

BARDWELL, ANDERSON & Co.

Col. S. M. MANSFIELD.

PETITION.

BOSTON, MASS., *October 15, 1892.*

DEAR SIR: We, the undersigned wholesale fish dealers of Boston, believing that the lack of a channel around Jeffries Point works much against the proper development of the fish business in East Boston, do most earnestly request that a proper channel be dredged around that point.

John R. Neal & Co., N. D. Freeman Co., Gloucester Fish Co., J. Burns & Co., P. H. Pew, E. A. Rich & Co., J. Adams & Co., O. H. Wiley & Co., N. G. Stone & Co., Freeman & Cobb, Baker, Witherell & Co., Rich & Story, Conquest & Hodgkins, Story & Stevens, Blanchard & Towle, Boston Fish Co., F. C. Goodspeed & Co., Lombard & Curtis, Haskins Fish Co., Arnold & Winsor, B. F. Phillips & Co., Snow & Rich, Taylor Mayo, J. W. Marston & Co., Coleman, Son & Co., F. J. O'Hara & Co., P. Grimes & Co., J. W. Penlins, James Emery, jr., & Co.

Col. MANSFIELD.

LETTER OF MR. GEO. C. FITZPATRICK.

EAST BOSTON, *October 21, 1892.*

DEAR SIR: The captains of the vessels named on this list have been waited upon by the undersigned, and we have filled in their names, with value of vessel they command, with their full sanction and approval.

We remain, yours, respectfully,

GEO. C. FITZPATRICK.

Col. MANSFIELD,
Lieutenant-Colonel, Engineers.

PETITION.

BOSTON, MASS., *October 18, 1892.*

DEAR SIR: We, the captains of vessels, now selling our fish in Boston, do most earnestly request that a channel be dredged around Jeffries Point, East Boston, to increase the market for fish and thereby very greatly increase the commerce of Boston.

BOSTON VESSELS.

Schooner.		Value.
Edith Emery	P. Sullivan	$10,000
Mary G. Powers	M. Powers	13,000
Loring B. Haskell	Frank Cabral	10,000
Emma W. Brown	A. Drummond	10,000
Sylvester Whalen	S. Whalen	13,000
Julia E. Whalen	B. Whalen	12,000
Allen H. Jones	Frank Dunn	8,000
Sarah H. Prior	Frank Raymond	10,000
Hattie S. Phillips	J. Campbell	11,000
Cora Lee	Frank Perry	6,000
Emily P. Wright	Geo. O'Neil	8,000
W. P. O'Hara	M. Leonard	9,000
Nellie Dixon	John Carney	12,000
Belle J. Neal	J. Driscoll	11,000
Mary L. Harty	C. Foley	6,000
James Drinan	Dan Sullivan	6,000
Lydia Harvey	John Clancy	7,000
Emma E. Witherell	Loring Gayton	12,000
Unique	J. Lawrence	9,000
Total		183,000

PROVINCETOWN VESSELS.

Gracie H. Benson	J. Harvender	$10,000
Sea Fox	Tony Silva	13,000
Success	J. E. Freeman	2,000
Julia Costa	M. Costa	13,000
Ruth M. Martin	A. Martin	13,000
Clara S. Cameron	S. Weste	11,000
Joseph P. Johnson	M. Abner	12,500
Rosie Cabral	Jos. Cabral	12,750
M. B. Stetson	W. Wolf	12,000
Marshall L. Adams	Jos. Bragg	13,500
Nellie G. Adams	J. G. Silva	13,000
J. J. Merritt, jr	J. Swazier	11,000
Governor Russell	E. Crowell	13,500
Susan R. Stone	Jos. Stewart	11,000
Daniel Boone	J. Newcomb	3,000
Schuylkill	S. Newcomb	3,500
Nellie M. Snow	N. Williams	10,000
Frank Foster	C. Foster	6,000
Addison Center	A. Cahoon	8,000
Gertie S. Winsor	J. Paige	9,000
Carrie E. Phillips	M. Keaton	12,000
Longwood	T. Green	7,500
Ada K. Damon	A. Azuli	7,000
Joseph A. Manta	M. Gracia	8,000
Total		225,500

GLOUCESTER VESSELS.

Schooner.		Value.
Maggie and Lily	M. Silva	$7,000
Gloriana	S. Smith	12,000
Chas. W. Parker	H. Johnson	11,000
Ella F. Bartlett	Tom O'Donnell	3,500
Leader	John Coney	6,500
S. R. Lane	John Josephs	8,500
Abbie A. Snow	J. Perry	7,500
Dixie	B. Hodgdon	4,000
Josie Johnson	Victor Fardig	4,500
Elsie F. Rowe	J. Gannon	6,500
Oceanus	Wm. Lyons	6,000
Geo. A. Upton	B. Corey	6,500
Sarah C. Wharf	Chas. Perkins	4,500
Lottie S. Haskins	Elias Malone	6,500
John Smith	D. Silva	8,000
Sarah	Jos. Corea	6,500
Lizzie J. Jones	Otto Jenson	6,000
Silver Dart	A. Snow	4,500
Mary Fernald	Jos. Garland	7,500
F. R. Walker	J. Nelson	4,500
Annie E. Lane	Frank Howard	6,500
Della F. Tarr	M. Enos	5,000
Horace B. Parker	W. Thoma	11,000
Essex	E. Jones	10,000
Helen F. Whitten	Owen Whitten	13,000
Sterling	E. Joseph	9,000
W. H. Cross	M. Silva	5,500
E. A. Rich	Otto Johnson	12,000
Cavaire	Emmet Stevens	6,500
Shenandoah	Wm. Sweet	5,500
W. H. Crosser	M. Thurlow	6,500
Total		213,000

SWAMPSCOTT BOATS.

Acacia	Otis Cahoon	$3,500
Jessie	T. A. McLellan	4,500
Hattie F. Knowlton	Sol Wiley	5,000
Little Katie	H. Cahoon	4,500
Minnehaha	R. Horton, sr	3,500
Golden Rule	R. Horton, jr	3,500
Florence Nightingale	J. Haley	4,500
Pluribustah	C. Kehoe	4,500
Ettie	Amos Glase	3,000
Carrie F. Roberts	N. Newcomb	4,000
Jennie P. Phillips	E. Doane	5,000
Total		45,500

ROCKPORT BOATS.

Lucy E	Jos. Coney	$4,500
Clara R. Harwood	Frank Coney	4,000
Clara M. Littlefield	Marion Coney	3,500
Livonia	Geo. Stevens	3,500
Eva Nichols	C. Smith	4,000
Defiance	W. Bailey	4,000
Lady of the Lake	T. Donahue	5,000
Quickstep	S. Tarr	4,500
Total		33,000

Col. MANSFIELD.

LETTER OF MR. JAMES SMITH, PRESIDENT BOSTON FORGE COMPANY.

BOSTON FORGE COMPANY,
East Boston, October 20, 1892.

SIR: Your communication of the 11th instant I have received, and in answer respectfully submit the views of the promoters of the contemplated improvements at Jeffries Point, as I understand them.

Their object is to develop the wharf property adjacent to the proposed channel, which is not now available on account of the shallow depth of water in front of them.

My opinion, as well as that of intelligent persons conversant with this property, is that such improvement would open up a long wharf front that would be of great benefit to the general public, the manufacturing, coastwise, and fishing interests; it would enable the manufacturers in this vicinity to receive their coal, iron, lumber, and other water-borne materials with greater facility, and conduce to the encouragement of commerce and trade.

There is already established here a very considerable fish-curing trade, that will serve as a nucleus for a much larger business when vessels of comparatively deep draft of water can come to these wharves.

Recently there has been manifested by the fish dealers of Boston much interest in this proposed improvement, and they assert positively that in the event of its completion, these wharves will become the receiving and distributing depot, to a great extent, of the fish trade of Boston.

The amount of commerce that would be benefited by this improvement it would be difficult, if not impossible, to estimate with any degree of certainty, but it is fair to assume that it would be quite large, because of the proximity of these wharves to two of the largest railroads in New England and the main channel of Boston Harbor.

I can not more specifically answer the queries of your letter, but when these improvements are completed, doubtless this location will become of considerable importance to the maritime and manufacturing interests of Boston.

Yours respectfully,

JAMES SMITH.

Lieut. Col. S. M. MANSFIELD,
Corps of Engineers, U. S. A.

LETTER OF THE BOSTON FORGE COMPANY.

BOSTON FORGE COMPANY,
East Boston, October 20, 1892.

SIR: Replying to your communication of the 11th instant, will state that the Boston Forge Company bought their wharf January 21, 1866; erected buildings and started their furnaces May following.

We chartered two-masted schooners and landed our coal, fuel, sand, kaolin, and other supplies on our wharf until 1873, when two vessels grounded on the flats, which had to be lightered (this was caused by the gradual filling in of the flats), after which the owners objected to charter to our wharf, and we have ever since been obliged to pay wharfage and cartage, which amounts on the average to $2,500 per annum. This outlay is a great detriment in close competition with other manufacturers who have water facilities, and gives no encouragement for further outlay.

We have at present $150,000 invested in our plant, and if the contemplated improvement is made could add greatly to our works.

We have done a business during the past twenty-seven years of $10,000,000; at present we have about 100 employés.

It would be of great benefit to all the abutters and add largely to the commercial and manufacturing interests of Boston.

Yours respectfully,

JAMES SMITH, *President.*

Lieut. Col. S. M. MANSFIELD,
Corps of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 56.

VINCENT COVE, GLOUCESTER HARBOR, MASSACHUSETTS.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of of Vincent Cove, Gloucester Harbor, Massachusetts.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. S. M. Mansfield, Corps of Engineers, dated October 27, 1892, of a preliminary examination of Vincent Cove, Gloucester Harbor, Massachusetts, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Maj. Gen., Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 27, 1892, by Lieut. Col. S. M. Mansfield, Corps of Engineers, of the results of a preliminary examination of Vincent Cove, Gloucester Harbor, Massachusetts, made to comply with provisions of the river and harbor act approved July 13, 1892.

Lieut. Col. Mansfield is of opinion that the cove is not worthy of improvement by the General Government, and I concur in his views.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF VINCENT COVE, GLOUCESTER HARBOR, MASSACHUSETTS.

UNITED STATES ENGINEER OFFICE,
Boston, Mass., October 27, 1892.

GENERAL: In accordance with the requirements of letter from your office of July 14, 1892, I have the honor to submit the following report upon the examination of Vincent Cove, Gloucester Harbor, Massachusetts, as provided in section 6 of the river and harbor act approved July 13, 1892.

This is a small inlet on the west side of the harbor, half way between Harbor Cove and the head of the river. It is encased in wharves upon which is transacted various businesses, fish-curing, coal and wood, and shipbuilding.

There seems to be no great demand for its improvement, and I have failed to secure any statement of the amount of commerce carried on there. The cove is so small as to be little more than a slip for vessels. It is said that if it be improved it would afford access for a larger class of vessels.

The approved project for the improvement of Gloucester Harbor contemplates a channel of 15 feet at mean low water across the mouth of the cove.

I am of opinion the cove is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

S. M. MANSFIELD,
Lieut. Col. of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 57.

LICKING RIVER, KENTUCKY.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Licking River, Kentucky, with a view to providing slackwater navigation.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. D. W. Lockwood, Corps of Engineers, dated October 17, 1892, of a preliminary examination of Licking River, Kentucky, with a view to providing slackwater navigation, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 17, 1892, by Maj. D. W. Lockwood, Corps of Engineers, of the results of a preliminary examination of Licking River, Kentucky, with a view to providing slackwater navigation, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Maj. Lockwood, concurred in by the Division Engineer and by this office, that the river is not worthy of improvement by the General Government in the manner proposed.

Very respectfully, your obedient servant.

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF LICKING RIVER, KENTUCKY, WITH A VIEW TO PROVIDING SLACKWATER NAVIGATION.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, October 17, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of the Licking River "with a view of providing slackwater navigation," in compliance with the requirements of Department letter of July 14, 1892.

The Licking lies wholly in the State of Kentucky, and rises in the southeast corner of the State, its head waters being within about 20 miles of the Cumberland Mountains, the boundary between Kentucky and West Virginia; its length is about 350 miles, and it has been surveyed for a distance of 297 miles from its mouth.

It was first surveyed in 1829 from its mouth to Slate Creek, a distance of 149 miles, by Lieuts. Turnbull and Grayson. In 1836 and 1837 this survey was extended by N. B. Buford, for the State of Kentucky, to West Liberty, a distance of 82 miles, and in 1878 the survey was still further extended, under the direction of Maj. William E. Merrill, Corps of Engineers, to Trace Creek, a distance of 66 miles.

During the winter of 1886–'87 a preliminary examination of the stream between Farmers and West Liberty was made under the direction of Maj. James C. Post, Corps of Engineers.

In 1837 the State of Kentucky began the improvement of the Licking by locks and dams, and contracts were let for five locks. In 1839 contracts were let for two additional locks. In 1840 work was suspended for lack of funds, and in 1842 a final settlement was made with the contractors. The total cost to the State was $372,520, all of which was a total loss.

The original project under which the old State locks were started called for the following dimensions of locks up to the Lower Blue Lick, a distance of 98 miles: Length, 175 feet; width, 38 feet. From the Lower Blue Lick to West Liberty the locks were to be 120 feet long and 20 feet wide. As actually started the dimensions were a compromise between the two given, to wit, length, 150 feet; width, 31 feet.

The lifts of the seven locks started by the State varied from 15¼ feet to 18 feet, and the dams were intended to be from 24 to 27 feet high. More recent investigation has shown that these lifts and heights of dams were excessive, and greater than the heights of the banks would warrant.

Granting that there are valuable deposits of coal and iron, and large tracts of valuable timber lands on the upper river, a careful examination of such information as I have been able to obtain shows that they are practically beyond the reach of slack-water navigation. Above Farmers it is estimated that the supply of water would be insufficient for about five months on an average in each year. In addition to this, the character of the upper river is such that only very small boats could be used. The assistant engineer who made the examination between Farmers and West Liberty stated that in this section there were places where a boat 60 feet long would have trouble in getting through on account of the sharp bends and narrow river. Coal and iron can not be moved economically on a slack-watered river under such conditions. Even as far up as the South Fork, 51 miles from the Ohio, it is questionable whether continuous navigation could be assured if locks and dams were constructed, for it must be borne in mind that the loss from evap-

oration will be very much greater from the pools than from the natural river.

The valley of the Licking is narrow and although very productive, its output, leaving out of account the coal, iron, and timber, which are above the reach of slack-water navigation, would hardly warrant the large expenditure of money necessary to improve the river by locks and dams, even so far as Falmouth.

The difference of level between the Ohio and the Licking at Falmouth is 85 feet, and it is more than likely that an average lift of 10 feet to each lock is about all the banks would allow. This would require 8 locks to carry slack water to Falmouth. * * *

In view of all the conditions and circumstances I do not consider the Licking River worthy of improvement by providing slack-water navigation.

The commercial statistics for fiscal year ending June 30, 1892, of the river as far down as Farmers show a tonnage of 34,588 tons, of which 30,000 tons consisted of logs, 2,500 tons of railroad ties, and 175 tons of staves. It is estimated that 8,000,000 feet B. M. of logs passed Farmers for the lower river last year. There is a considerable commerce out of the extreme lower river into the Ohio, but this is affected more by the conditions existing at the mouth than it would be by any improvement above.

Very respectfully, your obedient servant,

D. W. LOCKWOOD,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., October 25, 1892.

Respectfully forwarded to the office of the Chief of Engineers.

For the reasons assigned by the district engineer I concur in his opinion.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 58.

GEORGES RIVER, MAINE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Georges River, Maine.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. Peter C. Hains, Corps of Engineers, dated October 17, 1892, of a preliminary examination of Georges River, Maine, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report dated October 17, 1892, by Lieut. Col. Peter C. Hains, Corps of Engineers, of the results of a preliminary examination of Georges River, Maine, made to comply with provisions of the river and harbor act approved July 13, 1892.

Lieut. Col. Hains is of opinion that the river as far as Thomaston is worthy of improvement by the General Government, and that it will require $1,200 to make the surveys necessary to the preparation of plan and project with estimate of cost of improvement proposed.

I concur in his views.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF GEORGES RIVER, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., October 17, 1892.

GENERAL: In compliance with requirements of Department letter of July 14, 1892, I have made a preliminary examination of Georges River, Maine, and have the honor to submit the following report:

Georges River, sometimes called St. Georges River, is a deep tidal stream nearly up to Thomaston. Three and a half fathoms can be carried to within a mile of that town. Near the town itself the channel becomes narrow, and at one place there is a sharp bend which it is difficult to pass through on account of the swiftness of the cross currents.

Thomaston was formerly the center of a large shipbuilding industry. Some of the largest American sailing clippers were built here. This industry has greatly fallen off; still there are many sailing ships that were built, and are still owned in Thomaston, though they seldom visit that port except for repairs.

Large quantities of lime are manufactured and shipped from here. This is a bulky article of commerce, and gives constant employment, it is said, to no less than thirty vessels of from 150 to 500 tons capacity. The amount of lime shipped the past year, which is rather under the average, is put at over 300,000 barrels, valued at about $250,000.

The manufacture of lime creates a large demand for coal and cord wood. It is estimated that not less than 10,000 tons of coal and 15,000 cords of wood are received. The importation of wood gives employment to a large number of small sailing vessels, as the most of it comes from the Dominion of Canada. The exports and imports from the river above Thomaston would add considerably to the above, but no account of that is taken.

The improvement desired is the deepening and straightening of the channel in front of the town and in the bend already referred to. When a vessel goes ashore it is apt to cause a leak, and a leak in one loaded with lime is a serious matter, resulting in the almost certain loss of the cargo, and the probable destruction of the vessel. Two vessels are reported to have met with such an accident recently by being swept ashore at the bend by the swiftness of the current. One of them was lost by fire, and the other had to be scuttled to save her.

* * * * * * *

In view of the above I am of the opinion that Georges River, Maine, is worthy of improvement up as far as Thomaston, and I recommend that a survey be made, the estimated cost of which is $1,200.

Very respectfully, your obedient servant,

PETER C. HAINS,
Lieutenant Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 59.

BAR AT MOUTH OF MILFORD HAVEN, VIRGINIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of bar at mouth of Milford Haven, Virginia.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. Charles E. L. B. Davis, Corps of Engineers, dated November 29, 1892, of a preliminary examination of bar at mouth of Milford Haven, Virginia, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated November 29, 1892, by Maj. Charles E. L. B. Davis, Corps of Engineers, upon preliminary examination of bar at mouth of Milford Haven, Virginia, made in compliance with provisions of the river and harbor act approved July 13, 1892.

Maj. Davis states that, from his examination and from such information as he has been able to obtain, he is of the opinion that the bars at the mouth of Milford Haven are worthy of improvement by the General Government, and recommends that a survey be made, at an estimated cost of $600.

For the reasons stated by the local engineer, Col. William P. Craighill, Corps of Engineers, the Division Engineer, concurs in this opinion, and in the judgment of this office this locality is worthy of improvement.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF MILFORD HAVEN, VIRGINIA, BAR AT MOUTH.

UNITED STATES ENGINEER OFFICE,
Washington, D. C., November 29, 1892.

GENERAL: In compliance with the instructions contained in Department letter of July 14, 1892, I have the honor to submit the following report of a preliminary examination of "Milford Haven, Virginia, bar at the mouth," made on October 5, 1892, to comply with the provisions of the river and harbor act approved July 13, 1892.

Milford Haven, Virginia, is a tidal estuary situated on the westerly shore of the Chesapeake Bay, near Cherry Point, at the mouth of the Piankatank River and about 35 miles north of Fort Monroe, Va. It has two entrances, one at the northwest end of the haven, at Hills Bay, on the Piankatank River, about 2 miles inside of Cherry Point, and another at the southeast end on Chesapeake Bay, about 5 miles south of Cherry Point. It thus forms a strait, separating from the main shore a considerable body of land known as Gwynns Island. Both entrances are obstructed by bars. The northwest entrance from Piankatank River is the one generally used by vessels and steamers entering the haven, and is the mouth referred to in the river and harbor act of July 13, 1892.

Navigation is here obstructed by a bar over which but about 7 feet can be carried at low tide, while the channel is narrow and tortuous and quite difficult to navigate during unfavorable winds. As nearly as can be judged from the soundings on the map of the U. S. Coast Survey, of 1869, the length of the bar is from one-fourth to three-eighths of a mile. The bar is exposed to northwest winds, which have a reach across the lower part of the Piankatank River of no less than 4 miles. While it is probable that winds from this quarter are active causes of bar formation at this locality, no definite opinion on this subject could be expressed without the information to be obtained from a detailed survey and observations of the tidal currents. Whatever these forces may be, however, it is evident that they are still in active operation, for a channel was dredged through this bar by the Maryland Steamboat Company (one of whose steamers navigates the haven) in 1882 and again in 1887, and after each dredging the channel gradually shoaled.

After passing the outer bar a sufficient depth of water (indicated on the Coast Survey map as 12 feet or more) is found for a distance of three-eighths of a mile, when an inner bar is met having a depth of but about 6 feet. This bar lies between Cricket Hill Wharf, the first landing made by steamers after entering the haven, and Callis Wharf, on Gwynns Island, which is the second landing. A third landing is made

at Fitchetts Wharf (near Matthews Court-House),in Stutts Creek, about 4 miles from the mouth, where the water is also shoal.

Milford Haven is navigated by one steamer, the *Avalon*, belonging to the Maryland Steamboat Company and making two round trips a week from Baltimore. Four landings per week are thus made at each wharf. The steamer draws 7 feet when loaded. There are also eleven schooners and 6 bugeyes which harbor at Milford Haven, draft not stated.

The following is the estimated value of the annual trade of the haven, as furnished to me by one of the citizens requesting the examination: Oysters, 125,000 bushels; fish valued at $30,000, and farm produce valued at $100,000.

The shipments of merchandise from Baltimore are probably considerable, but their value is not stated. I was informed that the last census showed that between 600 and 700 people are living on Gwynns Island, and these are dependent on water transportation for their supplies.

It is stated that from one hundred and fifty to two hundred vessels pass over the bar annually. Milford Haven is evidently an important harbor of refuge for small vessels.

From my examination of the locality and such information as I have been able to obtain, I am of the opinion that the bars at the mouth of Milford Haven are worthy of improvement by the General Goverment, and would respectfully recommend that a survey be made with a view of estimating the cost of the work. The cost of such a survey and of the necessary current observations, together with the preparation of maps and project, is estimated at $600.

Very respectfully, your obedient servant,

CHAS. E. L. B. DAVIS,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., December 1, 1892.

Respectfully submitted to the Chief of Engineers.

For the reasons stated by the local engineer, I concur with him in the opinion that this locality is "worthy of improvement by the General Government."

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 60.

SEQUATCHIE RIVER, TENNESSEE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Sequatchie River, Tennessee.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. H. M. Robert, Corps of Engineers, dated August 23, 1892, of a preliminary examination of the Sequatchie River, Tennessee, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated August 23, 1892, from Lieut. Col. H. M. Robert, Corps of Engineers, of the results of a preliminary examination of Sequatchie River, Tennessee, made to comply with the provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Robert, concurred in by this office, that the river is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF SEQUATCHIE RIVER, TENNESSEE.

ENGINEER OFFICE, U. S. ARMY,
Nashville, Tenn., August 23, 1892.

GENERAL: I have the honor to submit herewith the following report of a preliminary examination of the Sequatchie River, Tennessee, made under the provisions of the river and harbor act of July 13, 1892.

The Sequatchie Valley is about 70 miles long and 4 miles wide, running in a southwesterly direction about parallel to the Tennessee River, being separated from it by Waldens Ridge, about 1,200 feet high. The Sequatchie River winds its way down this valley to the Tennessee, which it enters about 3 miles above South Pittsburg.

The hills on either side are exceedingly rich with coal and iron, the coal being mainly on the northwestern side, while the iron is on the opposite side of the valley. The accompanying letters will give some idea of the wealth of this valley.

The drainage area of the Sequatchie is very small because the mountains on either side rise up from the valley almost vertically to their full height so that the slopes are all from the valley. At Pikeville, 50 miles up the valley, in the driest seasons the river, I understand, is about 30 feet wide and 4 inches deep, giving a cross section of 10 square feet. At Dunlap, 20 miles by railroad down the valley, the river was, as near as I could judge without measuring, about 100 feet wide, and I was informed it was at least 3 feet deep. For about 4 miles above Dunlap the river maintains this width. I learned from one of the engineers engaged on the railroad survey that it is about 100 feet wide, about 12 miles in a straight line above its mouth where the railroad from Victoria to the Inman mine crosses the river. Messrs. Myers and Perin in the accompanying paper state that at its mouth it reaches a width of 300 feet, whereas Mr. Smith gives its greatest width at 150 feet.

About a dozen milldams are scattered along the river, about one-half the number being above Dunlap, and the other half below.

Through the kindness of Mr. McDonald, assistant engineer Nashville, Chattanooga and St. Louis Railroad, I was permitted to examine the notebooks of the survey for the railroad up the Sequatchie Valley and thus obtained some idea of the fall of the river. The railroad station at Whitwell is 30.77 feet, the station at Dunlap 103.77 feet, and the station at Pikesville 253.77 feet above the level of the river at the bridge where the Inman Branch Railroad crosses the Sequatchie River, about 12 miles in a straight line above its mouth. The river is assumed to have been at its low-water stage when the level was taken at the railroad bridge August 23, 1882, and the error due to this assumption does not probably exceed 1 foot, as the extreme rise of the river is stated to be about 12 feet.

Low water at the mouth of the Sequatchie is about 3.75 feet above low water at the railroad bridge at Bridgeport, as shown by the Government surveys, and connecting at the latter point with the railroad survey, we find that the fall of the Sequatchie from the railroad bridge to its mouth, a distance of about 12 miles, is about 17.50 feet. I was unable to ascertain the heights of the railroad stations above the adjacent river, but, from the best information obtainable without a special survey, it seems that there is a fall in the river of about 140 feet from Pikeville to Dunlap, a distance of 20 miles by railroad, and a fall of about 70 feet from Dunlap to Whitwell, about 15 miles, and a fall of about 30 feet from Whitwell to the mouth of the river, a distance also of about 15 miles in a straight line.

It is desired that the river be improved up to Pikeville, a distance of 50 miles by land, or at least to Dunlap, about 30 miles by land. The fall from Pikeville to the mouth of the river is about 240 feet, and from Dunlap to the mouth the fall is about 100 feet. Messrs. Myers and Perin state:

> The gradient of the stream from Pikeville, the probable head of navigation, is 6 feet to the mile, ascertained by accurate railway leveling.

More than fifty years ago, it is asserted, flatboats were built on this river, loaded with the products of the country, and floated down the Tennessee, Ohio, and Mississippi to New Orleans, where the freight and boats were sold, and the crews came back as far as Memphis and then footed it across the country home again, supporting themselves along the way by hunting. The State, in 1838, appropriated $5,000 for the improvement of this river, but from what I could learn it probably did as much harm as good. At any rate the river has not been used for many years.

The mineral resources of the valley are so great that the river should be improved if it could be done at any reasonable cost. But from Pikeville to Dunlap, though less than 20 miles by railroad, the river has a fall of about 140 feet, requiring about fourteen locks and dams, while the low-water channel for most of the distance varies from 30 to 60 feet in width, from the best information I can get. The improvement of this portion of the river is unquestionably not worth what it would cost.

Below Dunlap, or probably below Mount Airy, 5 miles above, the river is better, being probably 100 feet and at places 150 feet wide. Still the fall is very great, being 100 feet from Dunlap to the mouth, requiring ten locks and dams to make this portion of the river navigable. I do not think the large expenditure required for this improvement justifiable.

For the above reasons, notwithstanding the great resources of the valley, I am of opinion that the Sequatchie River, Tennessee, is not worthy of improvement by the General Government.

Appended are the letters of Messrs. Myers and Perin and Benjamin B. Smith, C. E., herein referred to.

Very respectfully, your obedient servant,

HENRY M. ROBERT,
Lieutenant-Colonel of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

JOINT LETTER OF MESSRS. G. C. MYERS AND C. P. PERIN.

PIKEVILLE, TENN., *August 11, 1892.*

DEAR SIR: In reply to your verbal request we send you the following facts in regard to the river of the Sequatchie Valley gathered from the most reliable sources:

First. This river flows through the entire length of the valley, about 80 miles, emptying into the Tennessee and rising in the Cumberland Mountains about 20 miles above Pikeville. Its width varies from 50 feet at its source to 300 feet at the point where it empties into the Tennessee River. Its cross section at Pikeville during the driest times is 30 feet wide by 4 inches deep, but the stream gradually gathers strength as it approaches the Tennessee. The gradient of the stream from Pikeville, the probable head of navigation, is 6 feet to the mile ascertained by accurate railway leveling. The current is ordinarily no swifter than that of the Tennessee River.

The present length of the river following its natural channel is probably 150

miles. The banks are principally of sand or alluvial soil, which will enable the straightening and shortening of the stream to be accomplished at small expense, The average depth of this stream in the channel is 3 feet.

Second. The resources of the valley are chiefly agricultural, the valley proper being from 3 to 5 miles wide its entire length. It is bounded on the east by Waldens Ridge, a mountain 1,200 feet high, and from 12 to 15 miles broad, underlaid with the famous red fossiliferous iron ore, which now supplies the blast furnace of the Tennessee Coal, Iron, and Railway Company at South Pittsburg. This mountain further furnishes coal, coke, ore, and limestone for the Rockwood furnaces; also the Dayton furnaces.

Said valley is bounded on the west by the Cumberland range of mountains, 1,100 feet high, and from 25 to 40 miles wide the entire length of the valley, exposing on its escarpment from five to eight veins of coal, one of which is the famous Sewanee coking coal vein.

This Cumberland coal field is practically inexhaustible and contains an area of 5,000 square miles, the product of which will ultimately supply the entire South. This field is accessible all along the Sequatchie Valley. In addition to the above resources we have unlimited quantities of building and paving stones now being worked at Pikeville and distributed along the entire river.

The slopes of these mountains are covered with every variety of timber known in the South. Oak, poplar, ash, walnut, and sycamore abound.

The table lands upon Waldens Ridge and Cumberland Mountain, under the stimulus of a market and cheap transportation, can be made to produce all varieties of small fruits in luxuriance as well as vegetables. Of the many other natural resources not mentioned all would be benefited by cheap water transportation such as was enjoyed by the inhabitants prior to the late war.

Very respectfully, your obedient servants,

G. C. MYERS.
C. P. PERIN.

Col. HENRY MARTYN ROBERT, U. S. A.

LETTER OF MR. BENJAMIN B. SMITH, CIVIL ENGINEER.

JASPER, *July 29, 1892.*

DEAR SIR: Your letter requesting data, etc., in regard to Sequatchie River came duly to hand. Inclosed you will find a short report as to the nature of the river, so far as I can get it from information picked up mainly during the convention, which met at Dunlap early in the spring. Hoping that the inclosed information will be of some service.

The Sequatchie River, more correctly in the Indian Sequachee, takes its rise in the extreme northern end of Sequatchie Valley and following a southerly and somewhat tortuous course of 100 miles or so, empties into the Tennessee River at a point about 3 miles above the town of South Pittsburg, Tenn. It is generally supposed to be a continuance of Lost Creek, made famous by Craddock's stories, which flowing due north, on the northern side of the divide, plunges into a mountain and, flowing under itself, emerges on the southern side of the divide, forming the Sequatchie River.

As far back as the 30's the river was extensively used for downstream traffic, taking the produce, mainly wheat, of the rich valley to the Tennessee River, there to meet with barges bound for southern and western ports. Wheat, corn, potatoes, chickens, eggs, spoke and stave timber, and rafts of logs were shipped in abundance on flush stages. An appropriation was made for this river at the same time with other rivers of the State by the State of Tennessee and expended in general channel work. No appropriation has ever been made by the General Government, so far as I can learn.

The project proposed by the convention which met in the spring of 1892 was to slackwater as far up as Dunlap, a distance of between 40 and 50 miles.

The river follows the general characteristics of rivers in this section. The banks are for the most part low and the bottoms of considerable extent Some rocky hills skirt the river in many places on one side or the other. At these points the river is narrow and the bed rocky and channel shallow. The river is obstructed by rock and gravel shoals, in some places the channel being exceedingly narrow where an island obstructs the river. So far as I can learn there are at present three mill-dams across the river between the mouth and Dunlap; the mills, I believe, are in active operation. The width of the river varies from about 60 to 150 feet. The fall from Dunlap to the Tennessee will probably aggregate in the neighborhood of 60 feet. This fall is mostly confined to the shoal and rocky portions, the valley in the main being

exceedingly level, the river flowing for long stretches through alluvial banks which are low, but stable for the most part.

There is practically no commerce at present, what there is being confined to rafting of poplar, with some oak and gum, during high-water seasons.

The object for clearing the river is to reduce the exorbitant freight rates of the Jasper branch of the N. C. & St. L. R. R., which has no competition and charges what it chooses. The traffic of this road is considerable, the main freight being the output of the Inman mines belonging to the Tennessee Coal, Iron, and Transportation Company. There are coal and iron mines also at Dunlap, Sequatchie, and near Jasper. Most of these mines are at present idle, owing to the enormous freight charges.

The river could be made navigable for the greater portion of the year by a combination of snagging and channel work with slack water where the shoals are rocky and the river is wide and shallow.

The mineral resources of the Sequatchie Valley are simply enormous. Coal and iron are found in great abundance, both on the Walden Ridge and the Cumberland Plateau.

In the upper valley considerable wheat, oats, grass, some corn, and cattle are raised. In the lower valley the farming industries are confined to corn cropping, with a little grass and some cattle, chickens, eggs, etc. There is yet some considerable amount of merchantable timber on the upper portions of the river.

Col. Tomlinson Fort, of Chattanooga, is chairman of Sequatchie River improvement committee, and could furnish you with all the names you could desire.

Very respectfully,

BENJ. B. SMITH, C. E.

Lieut. Col. HENRY M. ROBERT,
Corps of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 61.

ALLEGHENY RIVER, FROM OLEAN, N. Y., TO WARREN, PA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Allegheny River from Olean, N. Y., to Warren, Pa.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Amos Stickney, Corps of Engineers, dated September 30, 1892, of a preliminary examination of Allegheny River from Olean, N. Y., to Warren, Pa., made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated September 30, 1892, by Maj. Amos Stickney, Corps of Engineers, of the results of a preliminary examination of Allegheny River from Olean, N. Y., to Warren, Pa., made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Maj. Stickney, concurred in by the Division Engineer and by this office, that the river, within the limits named, is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF ALLEGHENY RIVER FROM OLEAN, NEW YORK, TO WARREN, PENNSYLVANIA.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, September 30, 1892.

GENERAL: I have the honor to submit the following report upon the preliminary examination of the Allegheny River between Olean, N. Y., and Warren, Pa., assigned to my charge by letter from your office dated July 14, 1892.

The examination was made by my assistant, Lieut. Harry F. Hodges, Corps of Engineers, a copy of whose report is transmitted herewith.

The river between Olean and Warren is exceedingly shallow, with but a small amount of water passing, and has a steep slope, amounting in some places to 5 feet fall in 1 mile. For a portion of this distance the river is used to some extent for floating logs to mill, but regular rafting can not be carried on under a 4-foot stage. The only improvement of the river that could be of much benefit to the community would be by the construction of locks and dams to make slack-water navigation, and the great cost of such works in comparison with the commerce that might be benefited renders it inadvisable to undertake them. A survey was made of this part of the river by the United States, in 1880, and some work of improvement done to facilitate the rafting of logs, but it would seem that further work of this description is not called for. I concur in the opinion of Lieut. Hodges that the locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

AMOS STICKNEY,
Major of Engineers.

Brig. GEN. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., October 1, 1892.

Respectfully forwarded to the office of the Chief of Engineers.

I concur in the opinion of the district engineer—that the river, within the limits indicated, is not worthy of improvement by the General Government.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

REPORT OF LIEUTENANT HARRY F. HODGES, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, September 27, 1892.

MAJOR: I have the honor to make the following report of the preliminary examination of the Allegheny River between Olean, N. Y., and Warren, Pa., which was ordered by the river and harbor act of July 13, 1892:

The distance between the points named, measured along the river, is 67 miles. The New York, Lake Erie and Western Railroad follows the stream for 23 miles, from Olean to Salamanca; the Western New York and Pennsylvania Railroad fol-

lows it for the whole distance from Olean to Warren; the Buffalo, Rochester and Pittsburg Railroad and a line of the Erie Railroad from Bradford cross it 15 miles below Olean. It will therefore be seen that there is no lack of railway transportation.

In 1880 a survey was made by the United States of the Allegheny River from Olean, N. Y., to Franklin, Pa., a distance of 132 miles. By this survey it was found that the fall of the river's surface in the first 20 miles below Olean averages 1.7 feet per mile. In the second 20 miles the average fall is 3.7 feet per mile; in the third 20 miles the average fall is 5 feet per mile; while in the fourth and fifth stretches of 20 miles the average fall is 3.5 feet per mile.

Between Olean and Warren the river is shallow, tortuous, and much obstructed by ripples, remains of old dams and booms. There are dams still in use at Salamanca, Corydon, and Shipmans Island. The width of the river reaches 300 feet in places. At the time of the examination, when the water gauge at Warren indicated three-tenths of a foot, a skiff drawing 8 inches of water could not come down from Olean without repeatedly requiring to be dragged over the shallows. On many ripples the depth was not more than from 3 to 6 inches for distances of 100 feet or more.

The principal towns on this stretch of the river are Olean, Salamanca, Corydon, Kinzua, and Warren. The principal interests are in lumber, tanning, oil, and iron works.

At present the river between Olean and Carrollton, 17 miles below, is not used for any purposes of transportation. Below Carrollton it is used to some extent for floating the logs which are cut along the banks to the mills where they are worked up, the lumber being shipped by rail. For regular rafting a stage of 4 feet in the channel at Warren is said to be necessary; for drifting, much less would suffice.

Without the establishment of a system of locks and dams there seems no possibility of an improvement which should fit this part of the river for purposes of general commerce. Regarding such a system as out of the question for the present, the only thing which can be done is to so clear the channel as to permit rafting at lower stages. By such improvement the lumber and bark trades alone would be benefited.

A certain amount of work has already been done by the United States with this end in view. The worst bowlders and rocks have been removed from the channel and a log chute has been constructed over the dangerous dam at Corydon. In spite of this work, which resulted in making rafting much easier, the shipments of lumber on the river have diminished to practically nothing now, while in 1880, 28,000,000 feet, B. M., of sawed lumber are reported as the annual river trade between and including Olean and Warren. The lumbermen say that at present the sole use of the river is for rafting or drifting round timber for short distances from the places where it is felled to the mills.

An improvement might be effected in the river by diking or dredging in such manner as to remove the worst ripples and to make rafting easier. There seems to be but little demand for such improvement even among those interested in the lumber trade. Nearly all the business men who were consulted, both in Warren and Olean, gave it as their opinion that further expenditure on the river would be a waste of money. To accomplish radical improvement for a distance of only 15 miles above Warren, would require diking or dredging at seventeen places, the worst ones being at a ripple just above Conewango Creek, at Shipmans Island, and at Kinzua Island. For the rest of the way the stream is in about as bad a state. The result of any work would be to prolong by a few weeks the season of rafting, and would be of no help to general trade. I am of the opinion that the expense would be out of all proportion to the benefits to be derived, and that the locality is not worthy of further improvement by the United States.

A survey of the river between the points named has already been made. No further survey is recommended.

Very respectfully, your obedient servant,

HARRY F. HODGES,
First Lieutenant, Corps of Engineers.

Maj. AMOS STICKNEY,
Corps of Engineers.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 62.

MORATTICO CREEK, VIRGINIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, a report of the examination of an obstruction at mouth of Morattico Creek, Virginia.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Charles E. L. B. Davis, Corps of Engineers, dated November 30, 1892, of a preliminary examination of an obstruction at mouth of Morattico Creek, Virginia, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated November 30, 1892, by Maj. Chas. E. L. B. Davis, Corps of Engineers, upon preliminary examination of obstruction at mouth of Morattico Creek, Virginia, made to comply with requirements of the river and harbor act approved July 13, 1892.

Maj. Davis reports that in his opinion Morattico Creek is not worthy of improvement by the General Government; and, for the reasons stated by the local engineer, this opinion is concurred in by the Division Engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF MORATTICO CREEK, VIRGINIA, OBSTRUCTION AT MOUTH.

UNITED STATES ENGINEER OFFICE,
Washington, D. C., November 30, 1892.

GENERAL: In compliance with the instructions contained in Department letter of July 14, 1892, I have the honor to submit the following report of a preliminary examination of "Morattico Creek, Virginia, obstruction at mouth," made on October 6, 1892, to comply with the provisions of the river and harbor act approved July 13, 1892.

Morattico Creek is a branch of the Rappahannock River, which it enters on the left at Tarpleys Point, 28 miles above the mouth, and 78 miles below Fredericksburg. Two creeks enter the river at this point, uniting at their mouths to form a shallow bay about a mile wide and three-fourths of a mile long, and lying just below Tarpleys Point. The upper or most northerly of these creeks is now known as Morattico Creek, although it is designated on the Coast Survey map of 1855–'56 as Lower Farnham Creek, which was presumably its name at that time. The lower of the two creeks is now known as Lancaster Creek, but upon the above-mentioned Coast Survey map it is designated as "Morvatico" Creek. Morattico Creek (the northerly creek) is said to be about half a mile long and from 3 to 4 feet deep, while Lancaster Creek is about 2 miles long and about 4 feet deep. My examination was limited to the obstruction at the mouth of Morattico Creek, which consists of the shoal water in the above-mentioned bay. The Rappahannock River at this point is about 3 miles wide, the navigation channel following the center of the stream, with a depth of from 4 to 6 fathoms. Leaving this channel on the proper course for Morattico Creek a wide flat is crossed for $1\frac{1}{2}$ miles, on which the depth gradually decreases from 11 to 6 feet at the entrance to the above-mentioned bay. Thence to the mouth of Morattico Creek the water gradually shoals to a depth of 4 feet at low tide. The soundings taken during the examination agree with those found on the Coast Survey map of 1855–'56, and indicate that no special changes have since occurred.

I have endeavored to obtain some definite statistics of the trade of this creek without success. One of the citizens to whom I was referred stated that the people desired the bars removed so that steamboats and vessels drawing from 7 to 8 feet could go into the creek. The Weems Steamboat Company (the only line on the Rappahannock) state, however, that their steamers would not enter the creek if it were improved, as they have recently established a new wharf on the river near the mouth of the creek, which they think sufficiently accommodates all shippers in its proximity. That the trade here is not large is evidenced by the fact that the steamers of this line stop at this wharf on only two of the three trips made per week.

The value of the shipments of timber and lumber is stated to be "thousands of dollars," but no definite figures are given. Oyster planting appears to be one of the principal industries at the creek, and the locality is said to be well adapted to oyster culture. At the time of my visit a schooner was lying in the bay discharging oysters, which were taken to the beds in the creek by rowboats. While a channel which would enable oyster and wood vessels to enter the creek and discharge or receive their cargoes would be of service to those engaged in this trade, I have been unable to learn of any commerce of sufficient amount or importance to justify or warrant the improvement of this

bar. I would therefore respectfully report that in my opinion Morattico Creek, Virginia, is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

CHAS. E. L. B. DAVIS,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. William P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., December 1, 1892.

Respectfully submitted to the Chief of Engineers.

For the reasons stated by the local engineer, I concur in the opinion that this locality is not "worthy of improvement by the General Government."

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

O

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 63.

WICOMICO RIVER, MARYLAND.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Wicomico River, Maryland.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Chas. E. L. B. Davis, Corps of Engineers, dated November 25, 1892, of a preliminary examination of Wicomico River, Maryland, western shore of the State, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated November 25, 1892, by Maj. Charles E. L. B. Davis, Corps of Engineers, upon preliminary examination of Wicomico River, Maryland, western shore of the State, made in accordance with provisions of the river and harbor act approved July 13, 1892.

Maj. Davis reports that after a careful consideration of all the facts which he has been able to obtain he is of the opinion that the present and prospective demands of commerce are not such as to render the Wicomico River worthy of improvement by the General Government.

For the reasons given in this report Col. William P. Craighill, Corps of Engineers, the Division Engineer, agrees that this stream is not worthy of improvement by the General Government, and I concur in this opinion.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF WICOMICO RIVER, MARYLAND, WESTERN SHORE OF THE STATE.

UNITED STATES ENGINEER OFFICE,
Washington, D. C., November 25, 1892.

GENERAL: In compliance with the instructions contained in Department letter of July 14, 1892, I have the honor to submit the following report of a preliminary examination of Wicomico River, Maryland, western shore of the State, made on September 29, 1892, to comply with the provisions of the river and harbor act approved July 13, 1892.

Wicomico River, Maryland, western shore of the State, is a tidal estuary of the Potomac River which it enters on the left about 75 miles below Washington, D. C. It is the largest of the numerous estuaries of the Potomac, being about 13 miles in length from its head at Allen's Fresh to its mouth at Cob Point. The width varies from about 1 mile near the head to 2 miles at the mouth. The width generally, however, is about 1½ miles. The channel at the mouth has a depth of 43 feet, gradually decreasing to 20 feet at a distance of 4 miles above. Thence for a further distance of 3 miles the depth varies from 12 to 16 feet, but the channel is thickly interspersed with small shoals or "oyster rocks" on which there are depths of from 4 to 5 feet, so that unless these shoals were well marked by buoys, the navigation would be difficult as well as dangerous. At a distance of 7 miles above the mouth is Chaptico Bay, a wide but shallow prong of the estuary, which extends about 2 miles to the northeastward.

On the lower side of the junction of Chaptico Bay with the main river is Mills Point, from which a shoal (with a depth of from 1 to 3 feet) makes out for three-fourths of a mile into the main river, which is here 1½ miles wide. Nine feet can be carried to a point 8 miles above the mouth and 6 feet can be carried for a distance of 9 miles above the mouth. The river then becomes quite shallow, the depth ranging from 3 to 4 feet. The depths above given are from the Coast Survey map of 1860–'68. One of the citizens who request an improvement of the river states, however, that there has been considerable shoaling during the last twenty years above Mills Point and the mouth of Chaptico Bay. The soundings taken during the examination indicate that such might be the case.

At the entrance to the river there is a light-house situated on the end of Cob Point Bar, while the lower part of the river affords a safe harbor during northeast storms for the largest vessels navigating the Potomac.

There are three wharves on the river, viz: Lancaster's Wharf, or Rock Point, on the right shore, 1½ miles above the mouth; Plowden's Wharf, or Bushwood, on the left, 2½ miles above the mouth; and Chaptico Wharf, on the left, 5¼ miles above the mouth. Landings are made at all of these wharves by two steamers of the Maryland and Virginia

Steamboat Company, plying between Baltimore and Washington, and at the two lower wharves by one steamer of the Washington Steamboat Company, Limited, plying only between Washington and Potomac River landings.

The river contains many oyster beds, and the taking of oysters appears to be an extensive industry. An oyster-canning establishment at Lancaster's Wharf is in operation during the oyster season.

The improvement desired by the citizens who requested the examination is the opening of a channel, 8 feet deep, through the interlocking bars above Chaptico Wharf and the shoals toward the head of the river. The dredging of a channel through Mills Point Bar was requested, to shorten the distance in going up the river, above Chaptico Wharf. Aside from the fact that such a channel would probably not remain open if dredged, it is quite unnecessary; for, as stated above, while Mills Point Bar extends three-fourths of a mile into the river, there still remains an equal width of river in which the main channel is found with a depth of 10 to 12 feet, except on the oyster rocks. The next bar which can be termed an interlocking bar is at Stoddards Point, nearly 2 miles above, so that, so far as these bars are concerned, a light-draft steamer or vessel can readily make a detour and pass the ends of them if the shoals and oyster rocks are well buoyed.

The statement of trade to be benefited by the proposed improvement was given me as follows: Wheat, 20,000 bushels, or 600 tons; tobacco, 5,000 hogsheads, or 2,250 tons; besides cattle and produce.

I am inclined to think, however, that these figures must be somewhat overestimated, inasmuch as the entire annual production of wheat in the two counties of Charles and St. Marys, which border on the river, as given by the census returns of 1880, was 263,810 bushels in a total farm area of 230,530 acres, and it is quite improbable that one-thirteenth of this amount is shipped from the small area tributary to the upper part of the Wicomico. Similarly the annual production of tobacco in these two counties in 1880 was 9,574,825 pounds, or, assuming 900 pounds as the average weight of a hogshead, 10,639 hogsheads. That one-half of the production of these two counties should be shipped from this small area is of course quite out of the question. It is evident, therefore, that very large reduction must be made from the above figures; just how much I am, of course, unable to say.

With a view to ascertaining if there were any demand for additional facilities for steamboat navigation on the river, I addressed letters to the representatives of both companies navigating the river, making inquiry on this point. The replies indicate that no work is needed in this regard.

Indeed, the people interested stated that they desired to facilitate the access of sailing vessels to the upper part of the river. It is fair to assume, however, that if there were much trade there the steamboat companies would express some wish to reach it.

After a careful consideration of all the facts which I have been able to obtain, I am of the opinion that the present and prospective demands of commerce are not such as to render the Wicomico River worthy of improvement by the General Government.

Very respectfully, your obedient servant,

CHAS. E. L. B. DAVIS,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., November 26, 1892.

Respectfully submitted to the Chief of Enginners.

For the reasons given by the local engineer, I agree in the opinion that this stream is *not* "worthy of improvement by the General Government."

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 64.

ADAMS LANDING, VERMONT.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of harbor at Adams Landing, Vermont.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. M. B. Adams, Corps of Engineers, dated September 3, 1892, of a preliminary examination of harbor at Adams (Tobias) Landing, so called, on Grand Isle, Vermont, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated September 3, 1892, by Maj. M. B. Adams, Corps of Engineers, of preliminary examination of harbor at Adams (Tobias) Landing, so called, on Grand Isle, Vermont, provided for by the river and harbor act approved July 13, 1892.

Maj. Adams states that the locality is not worthy of improvement by the General Government, and his opinion is concurred in by the division engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HARBOR AT ADAMS (TOBIAS) LANDING, SO CALLED, ON GRAND ISLE, VERMONT.

UNITED STATES ENGINEER OFFICE,
Burlington, Vt., September 3, 1892.

GENERAL: In compliance with your instructions of July 14, and as provided in river and harbor act of July 13, 1892, I have the honor to report the result of a preliminary examination at Adams Landing, so called, Grand Isle, Vt., made on 16th ultimo.

Adams Landing, or Tobias Landing of the Coast Survey charts, is situated on the west shore of Grand Isle, about 4 miles north of Gordon Landing.

A preliminary examination was made at this landing November 14 and 15, 1887, and reported November 17 of that year, in compliance with an indorsement dated November 1, 1887, from your office, on a letter from Senator George F. Edmunds to the Secretary of War. The report was accompanied by a map and the conditions and desired changes at the landing were pretty fully set forth.

As far as could be learned there has been no change in the conditions or desired relief at the landing since 1887; now, as then, water from 5 to 6 feet in depth at low-water stage was found to exist along the immediate front of the dock or landing, which it was and is the desire of the proprietor, as well as those frequenting the landing, to have increased to 9 feet in depth.

* * * * * * *

In consideration of the fact that the landing is private property, that each ton of freight passing over it can be made to pay toll to the proprietor, and that he might at any time, if he chooses to do so, discontinue it as a convenience to the public; and, also, since the relief desired could be more economically effected by extending the dock 50 or 60 feet into the lake; I do not feel warranted in recommending the improvement as one that should be undertaken by the United States Government, as it is not worthy.

COMMERCIAL STATISTICS.

The proprietor of the landing informs me that the annual freight traffic amounts to 2,000 tons, and that the passenger travel at the landing amounts to from 3,000 to 5,000 persons annually.

Very respectfully, your obedient servant,

M. B. ADAMS,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. H. L. Abbot, Corps of Engineers, Division Engineer, Northeast Division.)

[First indorsement.]

NORTHEAST DIVISION, ENGINEER OFFICE,
New York, September 24, 1892.

Respectfully forwarded to the Chief of Engineers.

For the reasons stated by Maj. Adams, I concur with him in the opinion that this harbor is not worthy of improvement by the General Government.

HENRY L. ABBOT,
Colonel of Engineers, Bvt. Brig. Gen., U. S. A.,
Engineer, Northeast Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 65.

GREAT SOUTH BAY, NEW YORK.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of channel connecting Freeport with Great South Bay, New York.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Capt. Thos. L. Casey, Corps of Engineers, dated September 23, 1892, of a preliminary examination of channel connecting Freeport with Great South Bay, New York, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, dated September 23, 1892, by Capt. Thos. L. Casey, Corps of Engineers, of the results of preliminary examination of channel connecting Freeport with Great South Bay, New York, made to comply with provisions of the river and harbor act approved July 13, 1892.

Capt. Casey is of opinion that the channel is worthy of improvement by the General Government.

The division engineer, in transmitting the local officer's report, states that he does not regard Freeport Channel as worthy of improvement by the General Government.

I concur in the opinion of the division engineer.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF CHANNEL CONNECTING FREEPORT WITH GREAT SOUTH BAY, NEW YORK.

UNITED STATES ENGINEER OFFICE,
New York, September 23, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination for a channel connecting Freeport with Great South Bay, as called for in the river and harbor act of July 13, 1892.

Freeport is a village of 3,000 inhabitants situated on the south shore of Long Island, back of Hempstead Bay. From the upland a narrow creek flows through the salt meadow to the bay. Hempstead Bay is merely a network of passageways separating into isolated patches the marsh land back of the ocean beach. The term "Great South Bay" is usually confined to the open water to the east; as used in the wording of the act authorizing this examination it is applied to the entire locality between the upland and the ocean beach. The desire of the people of Freeport is such an improvement of the creek as will give them better facilities for reaching the navigable channels which extend to New Inlet, and thence to the open water of the ocean.

An examination of the creek and bay channels was made at low water and soundings taken for a distance of about 3 miles; information as to the condition of the lower bay channels was obtained from the native boatmen and from the latest U. S. Coast Survey charts.

Of the seven inlets along the beach from Rockaway to Fire Island, a distance of 30 miles, New Inlet is now in the best condition, maintaining a depth of from 6 feet to 8 feet at mean low water. Inside the inlet there is an almost direct channel to the mouth of Freeport Creek, a distance of 4½ miles. On the lower reaches the depth is nowhere less than 10 feet at mean low water, and a depth of about 4 feet at the same stage is carried to the mouth of the creek. The mean rise and fall of the tide is in the neighborhood of 4 feet. A bar obstructs the entrance into the creek, having a maximum depth of 2 feet at mean low tide. From the mouth of the creek to the head of navigation is about 1¼ miles.

For perhaps half a mile the creek runs along the upland in front of the village, giving an accessible water front. It is here essentially a canal, the fresh water from above having recently been impounded by the Brooklyn waterworks department, and is not more than 40 feet wide, running nearly bare at low water. After leaving the upland the creek increases in width and depth, the last reach being nearly 200 eet wide and from 4 feet to 5 feet deep at low tide.

Under the present conditions vessels drawing more than 4½ feet have to remain below and lighter up their cargo. The largest boats that enter the creek carry 40 tons. A list of vessels running to the creek has been prepared, giving name, tonnage, and draft. It includes 17 schooners with a tonnage varying from 20 to 150 tons, and draft from 3 to 11 feet; 21 sloops of 12 to 36 tons, draft 3 to 5 feet; 13 catboats of 5 to 8 tons, draft 2 feet; 2 steamers of 10 to 20 tons, 10 sloops and schooners, 20 yachts, 40 oyster boats, and 4 steamers are said to be owned in the creek, in addition to those mentioned above.

The chief business on the creek is the oyster industry, employing 100 men and bringing into the creek from 30,000 to 50,000 bushels per year. The general merchandise is estimated at 1,000 to 2,000 tons of coal, 500,000 to 1,000,000 brick, 250,000 to 500,000 feet of lumber, and 100 tons of fish.

There is no town or creek along the shore for a distance of 40 miles that is so favorably situated as Freeport for obtaining a practical connection with coastwise traffic. At East Rockaway Creek a longer distance must be improved before reaching the bay channels and the inlet is more obstructed. An unfavorable report upon a preliminary examination of East Rockaway Creek was made in 1888 by Capt. Derby. All the other creeks along this shore empty into a broad expanse of shoal water, requiring protection works in the exposed portions. At three such less favorable localities works of improvement have been undertaken by the Government. At others private parties have obtained possession of adjoining land and improved the creeks at their own expense, merely for the increased value given to real estate in the vicinity.

The improvement desired at Freeport Creek is a channel 40 feet wide and 4 feet deep at mean low water from the mouth of the creek to the head of navigation. * * * It is doubtful if such a dredged channel would be fully maintained by the creek, especially as the flow of fresh water has recently been cut off; in fact, a deposit of mud several inches deep has already formed since the closing of the dam nearly one year ago. Still some permanent improvement could be reasonably expected. A survey would cost $500.

Having in view all of the conditions above given, and especially the natural advantages and apparently flourishing state of the community to be benefited, I am of the opinion that Freeport Channel is worthy of improvement by the Government.

Respectfully submitted.

THOS. L. CASEY,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Henry L. Abbot, Corps of Engineers, Division Engineer, Northeast Division.)

[First indorsement.]

NORTHEAST DIVISION, ENGINEER OFFICE,
New York, September 26, 1892.

Respectfully forwarded to the Chief of Engineers.

Inasmuch as a deposit of mud several inches deep has formed since the closing of the dam about a year ago, this channel appears to be

undergoing natural deterioration, and hence, in all probability, to maintain the desired increased depth, will call for dredging frequently repeated. This will involve an outlay, in my judgment, not justified by the commercial importance of the place.

I do not, therefore, regard the Freeport Channel as worthy of improvement by the General Government.

HENRY L. ABBOT,
Colonel of Engineers, Brevet Brigadier-General, U. S. A.,
Engineer, Northeast Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 66.

BIG SANDY RIVER, KENTUCKY.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, a report of the examination of Big Sandy River, Kentucky.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. D. W. Lockwood, Corps of Engineers, dated October 18, 1892, of a preliminary examination of the Big Sandy River, Kentucky, from its junction with the Ohio River to the crossing of the Big Sandy by the Chesapeake and Ohio Railroad Bridge, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 18, 1892, by Maj. D. W. Lockwood, Corps of Engineers, of the results of preliminary examination of Big Sandy River, Kentucky, from its junction with the Ohio River to the crossing of the Big Sandy by the Chesapeake and Ohio Railroad bridge with a view of ascertaining if there be a bar in the Ohio River at the mouth of said Big Sandy obstructing navigation, and if there be, whether confining the waters of the Big Sandy to the general course of its channel between said points the said bar will be removed.

This examination was made to comply with provisions of the river and harbor act approved July 13, 1892, and Maj. Lockwood is of opinion that the locality is not worthy of improvement by the General Government. His opinion is concurred in by the division engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF THE BIG SANDY RIVER, KENTUCKY, FROM ITS JUNCTION WITH THE OHIO RIVER TO THE CROSSING OF THE BIG SANDY BY THE CHESAPEAKE AND OHIO RAILROAD BRIDGE, WITH A VIEW OF ASCERTAINING IF THERE BE A BAR IN THE OHIO RIVER AT THE MOUTH OF SAID BIG SANDY OBSTRUCTING NAVIGATION, AND IF THERE BE WHETHER CONFINING THE WATERS OF THE BIG SANDY TO THE GENERAL COURSE OF ITS CHANNEL BETWEEN SAID POINTS THE BAR WILL BE REMOVED.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, October 18, 1892.

GENERAL: The river and harbor act of July 13, 1892, contained the following:

SEC. 6. That the Secretary of War is hereby directed to cause preliminary examinations to be made at the following localities, to wit:

* * * * * * *

Big Sandy River from its junction with the Ohio River to the crossing of the Big Sandy by the Chesapeake and Ohio Railroad bridge, with a view of ascertaining if there be a bar in the Ohio River at the mouth of said Big Sandy obstructing navigation, and if there be whether confining the waters of the Big Sandy to the general course of its channel between said points the said bar will be removed.

In compliance with Department letter of July 14, by which this examination was assigned to me, I have the honor to submit the following report:

The Big Sandy empties into the Ohio at Catlettsburg, 151¾ miles above Cincinnati. It is a stream that varies from a depth hardly sufficient to float a skiff, to one at high water having a depth of upwards of 40 feet. From the junction of the Tug and Levisa forks, 26 miles above the Ohio, the banks of the Big Sandy are of sand easily washed. This is true also of the banks of the two forks after they leave the mountain country, and the result is that every rise in the Sandy or its forks carries with it large quantities of sand.

In consequence of the extreme variation in the discharge, the cross-section, area of discharge, must be such as to accommodate the high-water outflow, and when the river falls the low-water channel is cut out somewhere between the high-water banks, but its location may vary from year to year.

An examination of the locality when the Ohio and Sandy were both low, developed the fact that there existed a bar in the Ohio below the mouth of the Sandy that extended out into the Ohio from 250 to 300 feet, and that the mouth of the Sandy had been crowded upstream by it, close under Virginia Point.

Supposing the Ohio and Sandy both high, a bar will necessarily be formed in the latter stream, where its sand-laden water strikes the back water from the Ohio. The point at which this occurs will, of course, vary according to the relative heights of the two streams. The Sandy

rises and falls much more rapidly than the Ohio, and low water may exist in the Sandy when the Ohio is still at a fair stage, and in such cases, the Ohio falling slowly, small rises in the Sandy operates to move its bar nearer the Ohio, until the Ohio reaching so low a stage that its current can not carry away the sand brought into it by the Sandy during its rises, a bar is formed in the Ohio, as was the case this season, just below the mouth of the Sandy, and this bar will vary, a rise in the Sandy adding to it and a rise in the Ohio cutting it away.

Steamboatmen, raftsmen, and push boatmen stated to me that this year, with both streams low, there came a number of rises in the Sandy that would have permitted boats to go to the upper river if they could have gotten from the mouth to the Chesapeake and Ohio Railroad bridge, 6,500 feet above, and these people expressed the opinion that if parallel dikes were constructed from the bridge to the Ohio, so as to limit the low-water channel, this trouble would disappear. I am not of this opinion, however, as confining the water to produce a scouring effect would cause shoaling above the upper ends of the dikes, and so long as the current in the Ohio is too weak to carry away the sand that the Sandy brings out, there is sure to be a shoal at the mouth. Spur dikes in any event would be preferable to those proposed.

While the lower end of the low-water channel is over against Virginia Point, in high water the current sweeps along the front of Catlettsburg, washing the bank and endangering the safety of a part of the town.

When the board of internal improvements of the State of Kentucky were investigating the subject of slackwatering various streams in Kentucky by locks and dams, between 1830 and 1840, they only recommended the improvement of descending navigation for this stream, in consequence of a condition of affairs at the mouth similar to those found to exist to-day, only in less degree, for clearing the banks of timber has added to the unfavorable conditions that even then existed.

I do not deem the locality worthy of improvement, for the reason that, in my opinion, the bar at the mouth must be removed by the action of the Ohio, and will generally exist when the Ohio is so low that its feeble current can not carry away the sand brought down by the Sandy, and at such times a rise in the latter but piles up more sand.

A blue print* giving the characteristics of the Big Sandy from the railroad bridge to the Ohio, and a tracing* of profile of lower part of Sandy, from the Bell survey of 1875, are forwarded in a separate package.

The blue print was made from a map compiled from data obtained from two to four years ago, and on it I have indicated the general location of the low-water channel as it existed at the time I made an examination of it during September.

The stage of water when the map was made was higher than when I made the examination, and the width of the stream was greater than it was as I saw it. I am indebted to Mr. W. W. Coe, chief engineer of the Norfolk and Western Railroad, for this map.

Very respectfully, your obedient servant,

D. W. LOCKWOOD,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

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*Not printed.

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., October 25, 1892.

Respectfully forwarded to the office of the Chief of Engineers.

For the reasons assigned by the District Engineer, I concur in his conclusion.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 67.

OWLS HEAD HARBOR, MAINE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Owls Head Harbor, Maine.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. Peter C. Hains, Corps of Engineers, dated October 18, 1892, of a preliminary examination of Owls Head Harbor, Maine, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, dated October 18, 1892, by Lieut. Col. Peter C. Hains, Corps of Engineers, of the results of a preliminary examination of Owls Head Harbor, Maine, made to comply with provisions of river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Hains, concurred in by this office, that Owls Head Harbor is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF OWLS HEAD HARBOR, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., October 18, 1892.

GENERAL: In compliance with requirements of Department letter of July 14, 1892, I have made a preliminary examination of Owls Head Harbor, Maine, and have the honor to submit the following report:

Owls Head Harbor is located on the west side of Owls Head Bay, 2½ miles from Rockland. The harbor is formed by a crescent-shaped indentation in the shore line, which shelters it on the west and north sides, while Munroe Island, distant less than half a mile, shelters it on the east and southeast. The outer part of the harbor is exposed in a northeasterly direction only to the winds, which sweep diagonally across Penobscot Bay, but there is an area close in to shore which is protected from winds and seas even in that direction.

Owls Head Bay is a narrow stretch of water between the west shore and Munroe Island. It is estimated that more than 20,000 vessels pass through it annually.

Formerly vessels bound for Rockland sought shelter from easterly storms in Owls Head Harbor, because Rockland Harbor was fully exposed, but since the Government has constructed the breakwater at Rockland this is no longer necessary. Rockland Harbor is itself now an excellent harbor of refuge from easterly storms.

The improvement desired at Owls Head is the enlargement of the harbor by the construction of a breakwater from the easterly point of the mainland to a ledge known as Dodges Ledge, about 500 feet distant. * * *

It may be remarked that the Government some years ago expended $17,902 in constructing a breakwater here of wooden cribs filled with stone. Some of the latter still remains there, but the timber has disappeared. At that time there was no breakwater at Rockland, and a harbor to shelter from easterly storms was a necessity in the near vicinity. The status has now changed. The Rockland breakwater affords the best of shelter. South of Owls Head, and distant only 6½ miles, is another excellent harbor known as Seal Harbor. Thus Owls Head Harbor is between these two, distant 6½ miles in one direction and 2½ in the other. A sailing vessel can thus make a fair wind under any circumstances if a harbor of refuge is sought.

I am informed that many vessels still anchor in Owls Head Harbor notwithstanding the fact that there is a better harbor only 2½ miles distant, but the Rockland breakwater was not until within the last few years sufficiently extended to be of much use. As mariners become accustomed to the latter they will seek it in preference to Owls Head, except perhaps those that hail from the latter place; naturally they will prefer to anchor at Owls Head.

Nineteen vessels are reported to have broken from their moorings at Owls Head within the last eighteen years, but only one was wrecked, and in no case were any lives lost. Some drifted ashore and were afterward floated off, others proceeded on their journeys, losing their anchors only. These accidents might perhaps have been avoided if the vessels had been provided with good ground tackle. One other vessel was wrecked here, but she was run on to Dodges Ledge in broad daylight. Breakwaters, be they ever so numerous, can not give protection from the consequences of such stupidity.

The natural harbor at Owls Head is a good one without any break-

water, but the protected area is comparatively small. If it were proposed to enlarge it, I am of the opinion that a better location for the breakwater would be a short distance to the southward. The location formerly chosen was the most economical one, but it added little to the protected area.

I am of the opinion, however, that the natural harbor is large enough for all practical purposes at the present time, and that vessels provided with good anchors and chains will have no difficulty in riding out an easterly gale. Morever, the number of vessels that anchor there for refuge will grow less and iess each year as the advantages of Rockland become better known. The breakwater at the latter place is not yet half finished, and, in my opinion, it is better for the Government to apply all the money it is proposed to expend on breakwaters in this vicinity to that at Rockland.

In view of the above, I am of the opinion that Owls Head Harbor, Maine, is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

PETER C. HAINS,
Lieutenant-Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 68.

LITTLE MIAMI RIVER, OHIO.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Little Miami River, Ohio.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Amos Stickney, Corps of Engineers, dated October 18, 1892, of a preliminary examination of the Little Miami River, Ohio, with the view of affording an ice harbor, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated October 18, 1892, by Maj. Amos Stickney, Corps of Engineers, of the results of a preliminary examination of Little Miami River, Ohio, with the view of affording an ice harbor, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Maj. Stickney, concurred in by the Division Engineer and by this office, that the locality is not worthy of improvement by the General Government for the purpose named.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF LITTLE MIAMI RIVER, OHIO, WITH THE VIEW OF AFFORDING AN ICE HARBOR.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, October 18, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination of the Little Miami River, Ohio, with the view of forming an ice harbor. This examination was made by my assistant, First Lieut. H. F. Hodges, Corps of Engineers, a copy of whose report is transmitted herewith.

The Little Miami at its mouth is, in low water, an exceedingly small stream. As stated in Lieut. Hodges's report, a channel 20 feet wide and 1 foot deep could not be found when the Cincinnati gauge was at 4.8 feet, which corresponds to 2.8 feet above low water. The sketch* accompanying the report shows how the mouth of the river is obstructed by a bar. To form a harbor here that would be of any use this bar would have to be dredged out, but as the Ohio River channel is on the Kentucky side the area, if dredged, would immediately fill up again. The location is, in my opinion, entirely unsuitable for the formation of a harbor, and I must therefore concur in the statement of Lieut. Hodges that it is not worthy of improvement by the General Government for the purpose named.

Very respectfully, your obedient servant,

AMOS STICKNEY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., October 25 892.

Respectfully forwarded to the office of the Chief of Engineers.

I concur in the opinion of the district engineer that the locality is not worthy of improvement by the General Government.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

REPORT OF LIEUTENANT H. F. HODGES, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, October 10, 1892.

SIR: I have the honor to make the following report on the preliminary examination of the Little Miami River, with the view of forming an ice harbor. The examination was provided for in the river and harbor act of July 13, 1892, and was made by me under your orders on the 5th instant.

The Little Miami River empties into the Ohio from its right bank 6 miles above Cincinnati. At low water it occupies a channel of about 50 feet in width between bars of clay and sand. The banks which define the high-water channel are high and about 200 feet apart. They rise steeply from the clay bars at the base. For

* Not printed.

some distance above and below the mouth a large bar of cemented gravel extends well out into the Ohio River narrowing the latter to about half its normal width. One mile above the mouth the Little Miami is crossed by two bridges, one carrying a highway, the other the roadway of the Cincinnati, Georgetown and Portsmouth Railroad. The highway bridge, which is the farther downstream, would limit the high-water navigation of the river. The appearance of the locality is indicated approximately by the accompanying sketch. At the time of the examination, when the Ohio was at $4\frac{8}{10}$ feet on the Cincinnati gauge, a channel 20 feet wide and 1 foot deep could not have been found into the Little Miami.

An ice harbor placed almost anywhere in this vicinity would be of great service to the commerce of the Ohio River, especially to the coal trade. To be an efficient and commodious shelter it should have a depth of 6 feet and least width of 200 feet at all stages, since the ice has been known to go out at very low water.

The mouth of the Little Miami is not well adapted to the formation of such a harbor. The bars which occupy a large part of the high-water bed rise several feet above the low-water surface, and would not be drowned out until the water had risen to a comparatively high level. Before the necessary depth and width would be reached in the harbor the Ohio River would stand at about 16 feet on the Cincinnati gauge. A shelter available only at such high water would be of little or no use. The conditions being so unfavorable, I am compelled to report the locality as not worthy of improvement.

No survey is recommended.

Very respectfully, your obedient servant,

H. F. HODGES,
First Lieutenant, Corps of Engineers.

Maj. AMOS STICKNEY,
Corps of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 69.

BLACK WALNUT HARBOR, MARYLAND.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Black Walnut Harbor, Maryland, at the mouth of Great Choptank River.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from W. F. Smith, United States Agent, Major of Engineers, U. S. Army, retired, dated September 1, 1892, of a preliminary examination of Black Walnut Harbor, Maryland, at the mouth of Great Choptank River, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report dated September 1, 1892, by W. F. Smith, United States Agent, Major of Engineers, U. S. Army, retired, of the results of a preliminary examination of Black Walnut Harbor, Maryland, at the mouth of Great Choptank River, made to comply with the provisions of the river and harbor act approved July 13, 1892.

I concur in the views of the local engineer and the Division Engineer that this harbor is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF BLACK WALNUT HARBOR, AT THE MOUTH OF GREAT CHOPTANK RIVER, MARYLAND.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., September 1, 1892.

GENERAL: In compliance with instructions contained in Department letter of July 14, 1892, and the requirements of section 7 of the river and harbor act of July 13, 1892, I have the honor to submit the following report upon the preliminary examination of Black Walnut Harbor, Maryland, at the mouth of Great Choptank River, made under my direction by Mr. A. Stierle, assistant engineer.

It appears from the accompanying report of the assistant that the improvement desired by the inhabitants of the locality is the dredging of a channel from deep water in the Choptank River up to a private wharf in the harbor, with the view of making it an inducement for steamers navigating those waters to run in.

In view of the fact that such a channel would cost but a comparatively small sum of money, and that the information received from steamboat owners is such that they do not consider the proposed channel as of any benefit in the way of getting business for their boats, Black Walnut Harbor, Maryland, is, in my opinion, not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

WM. F. SMITH,
United States Agent.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[Third indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., September 22, 1892.

Respectfully submitted to the Chief of Engineers.

For the reasons set forth in the report of the local engineer I do not consider this locality "worthy of improvement by the General Government."

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

REPORT OF MR. A. STIERLE, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., August 20, 1892.

SIR: In compliance with your instructions, I have the honor to submit herewith a report upon the preliminary examination of Black Walnut Harbor, mouth of Great Choptank River, Maryland.

Black Walnut Harbor is on the southern extremity of Tilghman Island, in Talbot County, Md., on the north side of and just inside the mouth of the Choptank River. It is a natural cove between two long points of land which project from the island, and is sheltered from all points of the compass except from the south and the southeast. The protected area of the harbor measures about three-quarters of a square mile. The water is very shallow, the 6-foot contour running more than one-quarter of a mile from and parallel with the shore. About 2 feet is the average rise and fall of the tide. Tilghman Island is a portion of the long peninsula called Bay Hundred, which is about 15 miles long and is divided from the main body by a small thoroughfare called Knapps Narrows. The portion embracing the island is about 4 miles long and from three-fourths to 1½ miles wide.

About five years ago a company built a pier 1,300 feet long from the north shore into the cove in an almost southerly direction to the 6-foot depth in the harbor. This pier is much used during the winter season by small oyster vessels; its main object, however, was to induce the steamboats plying upon the Choptank River to land there. The depth of water at the head of the pier and from there out into the main channel was subsequently discovered to be insufficient for these steamers, whose draft of water generally exceeds 8 feet. The inhabitants of the island and a large number living on the shores of adjoining creeks ask, therefore, that a channel 10 feet in depth be dredged from that depth in the Choptank River to the wharf, so that the above steamboats can land there at any stage of the tide. From soundings taken on the spot I infer that the length of the required cut would not be over 900 feet. The bottom is stiff blue mud and promises permanency in the channel, if made.

The villages and settlements interested in the above improvement are Fairbank, Island City, Lewistown, and Tilghmans on Tilghman Island, Sherwood and Wittmans on the peninsula above, and that portion of St. Michaels district situated between Harris and Broad creeks, which includes the villages of Broad Creek, Long Point, Nevitts, and Bozmans. The total population of the villages named is at present about 2,000, and is rapidly increasing, having doubled within the last six years. The majority of the people depend upon the oyster business for a living, and nearly all own a house and small tract of land. There are also several large farms, the soil being unusually fertile and well adapted for the raising of grain. How large the oyster business is can best be shown by stating that in the immediate vicinity of Black Walnut Harbor about 100 buckeyes and 300 canoes, both belonging to the smaller class of sailing vessels, are owned, which, when engaged during the oyster season in dredging and tonging oysters, employ about 1,300 men. As the output of a buckeye is about 4,000 bushels per season, and that of a canoe 800 bushels, the total earnings from this source amount to not less than $320,000 per annum.

On an average five buckeyes of 10 tons burden each are built on the island each year. Twenty stores are located in the country adjacent to and depending upon the improvement of this harbor, whose annual sales amount on an average to $10,000 each. The nearest railroad station by land is McDaniels, on the Baltimore and Eastern Shore Railroad, and the nearest by water is Oxford, on the Delaware and Chesapeake Railroad, 10 miles to the eastward, which is also a regular landing place for Baltimore steamboats. A steamboat stops twice a week at Lows Wharf, a landing on the bay side of the hundred and 8 miles north of Black Walnut Harbor. These are the nearest points from which freight is shipped and received, except that which is brought direct from or taken to Baltimore in small vessels. It is a heavy tax, both in money and time to the people, as the hauling by wagons and boats from and to these points adds greatly to the cost of the necessaries of life, building material, fertilizers, etc.

A landing, as a distributing point more centrally located in the district and giving frequent and better facilities for receiving and shipping freight of all kind, is urgently needed. It is stated that if deeper water could be made at the head of the pier in Black Walnut Harbor a number of oyster-packing houses would be erected shortly, the location, in the midst of thousands of acres of fine oyster beds which cover the bottom of adjoining waters, being a most favorable one.

Notwithstanding the urgency of the case, it seems to me that the improvement asked for, which consists in dredging an artificial channel up to a wharf belonging to a private corporation, should be left to private enterprise. * * *

Very respectfully, your obedient servant,

A. STIERLE,
Assistant Engineer.

Gen. WM. F. SMITH,
United States Agent.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 70.

GLOUCESTER HARBOR, MASSACHUSETTS.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Gloucester Harbor, Massachusetts, from Five Pound Island to head of river.

DECEMBER 8, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. S. M. Mansfield, Corps of Engineers, dated October 27, 1892, of a preliminary examination of Gloucester Harbor, Massachusetts, from Five Pound Island to head of river, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 27, 1892, by Lieut. Col. S. M. Mansfield, Corps of Engineers, of the results of a preliminary examination of Gloucester Harbor, Massachusetts, from Five Pound Island to head of river, made to comply with the requirements of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Mansfield, concurred in by this office, that the locality is worthy of improvement by the General Government, and an estimate of $400 is submitted as the cost of the survey necessary to the preparation of plan for its improvement.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF GLOUCESTER HARBOR, MASSACHUSETTS, FROM FIVE POUND ISLAND TO HEAD OF RIVER.

UNITED STATES ENGINEER OFFICE,
Boston, Mass., October 27, 1892.

GENERAL: In accordance with requirements of letter from your office of July 14, 1892, I have the honor to submit the following report upon the examination of Gloucester Harbor, Massachusetts, from Five Pound Island to head of river, as provided in section 6 of the river and harbor act approved July 13, 1892.

This region is the upper portion of the busy harbor of Gloucester and lies just above and in continuation of the portion of the harbor embraced in the approved project for dredging to a depth of 15 feet at mean low water. The shore of the harbor and island is entirely occupied with warves.

A table showing the business transacted in this region, which aggregates $3,422,000 during the past year, is submitted herewith.

The chief difficulty in navigation is due to a reef which makes out from Five Pound Island at its southerly end, narrowing the channel between the island and John Pew & Son's wharves to about one-half the natural waterway, leaving a contracted passage to the wharves above, especially when vessels are lying at the wharves, as is most frequently the case, even to the number of three or four abreast. Vessels are occasionally injured on this reef, and it is claimed to be a serious danger to navigation and should be removed.

It, however, lies just on the southerly edge of the projected improvement of Gloucester Harbor. Above the water shoals gradually to the head of the harbor (or river), where it is further desired that the depth be somewhat increased by dredging, some of the wharf owners having already dredged about their wharves at their own expense.

In consideration of the large amount of business done, and number of vessels frequenting this district, I am of opinion that it is worthy of improvement by the General Government, and estimate that $400 will be required to enable me to make a survey and report, including a project with estimate of the cost of the improvement proposed.

Very respectfully, your obedient servant,

S. M. MANSFIELD,
Lieut. Col. of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

Table showing business transacted in Gloucester Harbor, Massachusetts, between Five Pound Island and head of river, October 27, 1892.

Name of firm.	Amount of business.	Value of property.	Number of vessels owned.	Value of vessels owned.	Number of men on vessels.	Vessels discharging.	Number of men employed on wharf.	Salt landed hogsheads.	Size of vessels, aggregate.	Business.
									Tons.	
John Pew & Son...	$1,000,000	$70,000	18	$85,000	830	40	100	*10	24,600	Fish and importers of salt.
Daniel Allen & Son.	200,000	20,000	12	48,000	560	35	20	4,500	2,900	Fish-curers.
Geo. Perkins & Son.	400,000	5,000	....	.....	500	50	40	2,500	3,000	Packers and distributor of fish.
W. H. Jordan	290,000	15,000	15	90,000	270	....	12	4,200	1,600	Curers of fish and outfitters.
W. H. Perkins	85,000	7,000	....	.....	660	55	8	2,000	3,500	
D. C. & H. Babson .	150,000	30,000	10	70,000	160	....	10	2,000	1,200	Curers of fish.
Geo. Todd	40,000	18,000	....	.....	105	15	14	.....	6,400	15 vessels, 5,000 tons coal and wood.
S. Smith & Co	210,000	30,000	14	90,000	300 225	30	12	4,000	3,500	Curers and outfitters.
D. B. Smith & Co ..	200,000	28,000	16	80,000	200 240	25	15	3,500	2,500	Do.
Brainard Low	150,000	12,000	....	.....	400	40	10	1,500	2,800	Smokers and packers.
W. H. Andrews....	12,000	7,000	....	.....	.....	....	6	.....	.....	Spar-maker.
Higgins & Gifford .	35,000	15,000	....	.....	.....	....	30	.....	.....	Boat-builders.
B. F. Witham & Co.	50,000	14,000	....	.....	210	18	15	500	1,000	Packers and distributors.
Shute & Merchant.	500,000	32,000	1	7,000	250	25	65	1,000	2,000	Smokers and distributors.
W. H. Wouson 3d..	100,000	14,000	....	.....	340	20	14	1,500	2,500	Do.
Totals	3,422,000	317,000	86	470,000	5,250	353	371	27,200	57,500	5,000 tons coal and wood.

*Cargoes.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 71.

PURCHASE OF THE VIRGINIA MILITARY-LAND RECORDS.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

An estimate of appropriation for the purchase of the Virginia military-land records, submitted by the Secretary of the Interior.

DECEMBER 8, 1892.—Referred to the Committee on Military Affairs, and ordered to be printed.

TREASURY DEPARTMENT, *December 7, 1892.*

SIR: I have the honor to transmit herewith, for the consideration of Congress, an estimate of appropriation for the purchase of the Virginia military-land records, books, maps, etc., $25,000, submitted by the Secretary of the Interior on the 5th instant.

Respectfully yours,

CHARLES FOSTER,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

DEPARTMENT OF THE INTERIOR,
Washington, December 5, 1892.

SIR: I have the honor to transmit herewith a special estimate of appropriation of $25,000 submitted by the Commissioner of the General Land Office, for the purchase of the Virginia military-land records, books, maps, etc., from Mr. Sam Kendrick, surveyor's office, Virginia military district, Chillicothe, Ohio. The estimate is approved, and the favorable consideration of Congress thereon is solicited.

Very respectfully,

JOHN W. NOBLE,
Secretary.

The SECRETARY OF THE TREASURY.

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE,
Washington, D. C., November 10, 1892.

SIR: I have the honor to transmit herewith, in duplicate, a special estimate of appropriation of $25,000 for the purchase of the Virginia military-land records, books, maps, etc., from Mr. Sam Kendrick, surveyor's office, Virginia military district, Chillicothe, Ohio. The purchase of these land records, etc., was previously recommended by this office in a report to you dated June 17, 1892, a copy of which accompanies the estimate.

Very respectfully,

W. M. STONE,
Acting Commissioner.

The SECRETARY OF THE INTERIOR.

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE,
Washington, D. C., June 17, 1892.

SIR: In the matter of the proposed purchase of the books and other records of Mr. Sam Kendrick, principal surveyor of the Virginia military district of Ohio, which formed the subject of your letter of May 20, 1872, I have the honor to state that in furtherance of the purpose in view, I designated three gentlemen of this office, Messrs. John H. Fimple, William A. Moore and William O. Conway, to examine and report on the subject and to give their opinion as to the proper price to be paid for said books and other records. By your authorization of May 31, 1892, they proceeded to Mr. Kendrick's office in Chillicothe, Ohio, where most of the books and records are, and they have submitted to me a report in duplicate of the result of their examination, which I herewith inclose for your consideration.

I have examined their report and concur with them in their conclusions.

I return herewith the papers inclosed with your letter of May 20, 1892, viz., (1) Letter from Sam Kendrick, esq., of May 19, 1892; (2) letter from Hon. John Sherman, of May 12, 1892; (3) letter from Hon. T. B. Coulter, of May 16, 1892; (4) Letter from Hon. Alphonse Hart, of May 15, 1892; (5) letter from Hon. R. E. Doan, of May 19, 1892; (6) copy of bill H. R. 344.

Very respectfully,

W. M. STONE,
Acting Commissioner.

The SECRETARY OF THE INTERIOR.

DEPARTMENT OF THE INTERIOR,
GENERAL LAND OFFICE,
Washington, D. C., June 17, 1892.

SIR: The undersigned, who were appointed by the Commissioner to examine and report on the books, plats, etc., of Mr. Sam Kendrick, surveyor of the Virginia military district of Ohio, which he proposes to dispose of to the United States for the use of this office, forming the subject of a letter from the honorable Secretary of the Interior to the Commissioner of May 20, 1892, and to give an opinion as to the proper price to be paid therefor, have the honor to report as follows, viz:

In accordance with the authorization of the Secretary dated May 31, 1892, we

visited Mr. Kendrick's office in Chillicothe, Ohio, and there made a thorough examination of the books, plats, etc., the subject of our inquiry, with the exception of two of the books, which were brought by Mr. Kendrick to this office, and here examined by us. We find as the result of our examination thereof that they are in a good state of preservation, and are the same described in a schedule submitted by Mr. Kendrick, as follows, viz:

(1) Three books of entries, of 600 pages each, size double royal, containing 16,213 entries.

(2) Six books of surveys of from 500 to 600 pages each, size three double royal and three demy, containing 16,213 surveys.

(3) A numerical index book to said entries and surveys, showing the number of each survey, the original quantity of acres, the original proprietor, the folio and book where recorded, the water course, and the State, county, and township where situate; this record, 300 pages; size, demy.

(4) A record of Virginia military warrants, showing each and every warrant issued by Virginia to her officers and soldiers of the Revolution upon continental establishment, giving the number of warrant, number of acres, the name of the warrantee, each and every location on each warrant now subsisting, the name of the locator, the acres in each survey, and the State, county, and township where the landis situate; this record of 400 pages, demy size, containing over 9,000 warrants, varying in quantity from 100 to 12,000 acres each, some of said warrants having ten to fifty locations founded upon them; this is the only correct and reliable record of said warrants in existence, there being a hiatus in the records at the office at Richmond, Va., where said warrants were issued of over 4,000; for twenty years the officials neglected to retain copies of warrants issued by them.

(5) Several hundred military warrants and certified copies of warrants, together with assignments and title papers thereto, a number of patents lost by prior and valid claims, surrendered and warrants relocated, or commuted by bounty scrip.

(6) All maps, plats, and connections of lands within the Virginia military districts owned by me, consisting of ten or twelve roll connections, showing location of subsisting surveys and wall maps of connected surveys, all muslin backed.

We find that in a report from this office to the Secretary of the Interior, dated April 30, 1890, on the same subject the following statement was made, viz:

"In reference to the subject, I have to state that when Virginia ceded to the Federal Government certain of its lands in what is now the State of Ohio, it reserved so much thereof in the Virginia military district as might be necessary to satisfy the claims to bounty lands, under its laws, of persons who had rendered military services. The Federal Government undertook to satisfy these claims, and, in doing so, made use of the agencies established in the district for entry and survey under the former State authority. The executive authorities of Virginia issued warrants to the surveyor of the district in favor of the beneficiaries found to be entitled, the beneficiaries procured the proper surveys to be made and entries to be allowed in the district, with proper local record of such proceedings, and producing the required evidence thereof obtained their patents for the land from the Federal officials. The records of the proceedings of the surveyors of the district under the State authority seem to have been retained by them as their private property, they being compensated for their services not by a salary from the State, but by fees from the parties for whom they acted."

"Congress, by act of February 24, 1829 (Stat., 4, 335 and 336), authorized the appointment of a surveyor for the district and provided for copies of the records in the possession of one Anderson, the previous surveyor, to be made and retained for use, but this provision of the act does not appear to have been carried into effect, owing, it has been suggested, to the fact that no appropriation of money was made to pay for the work of copying, and that the bond provided for in the act for Anderson's benefit was not given. The original records in the possession of Anderson continued to be used, and the latest incumbent or the office of surveyor of the district, Sam Kendrick, esq., claiming them as assignee from the former owners, offers to sell them to the United States.

"The United States disposed of any remaining lands in the Virginia military district in favor of the State of Ohio by acts of February 18, 1871 (16 Stat., 416), and May 27, 1889 (21 Stat., 105), and has provided for satisfying outstanding claims for State bounties by the issue of scrip by acts of August 31, 1852 (10 Stat., 143), and June 22, 1860 (12 Stat., 84).

"Claims to a considerable amount yet remain to be adjusted by the issue of scrip under these acts. Duties devolved upon this office in connection both with past transactions and with pending scrip claims, which require the investigation of title for which the few records it possesses, consisting of copies incomplete and imperfect and inadequate. It has been the practice to require applicants to procure the requisite data from the records of the surveyor of the district at Chillicothe or from the register of the Kentucky State land office at Frankfort, when they had reference

to the location and satisfaction of State warrants in whole or in part in the Kentucky miiitary district, the former embracing, in addition to the records of entries and surveys in the Ohio district, a complete record of military warrants issued by the State and facts connected therewith.

"Mr. Kendrick does not desire to continue to extend such accommodations in future.

"I have no doubt that the Government should possess the records in question as a means of facilitating examinations of questions relating to its own patent records and also for its protection against unfounded claims for scrip that may be presented on account of warrants that in whole or in part may have been satisfied, but of the satisfaction of which there is now no evidence in this office.

"The value of these records can not be determined on the principles ordinarily applicable in such a matter. It is probable that in the hands of a private individual they could not under existing circumstances be made a source of much revenue, their principal value in this respect having been realized in the past, but this fact does not prove that they would not be useful to the Government and those entitled to look to it for evidence of their rights and satisfaction of their subsisting claims under the statutes of the State and the United States. In a communication to this office Mr. Kendrick states his price as $25,000. The bill under consideration proposes an appropriation of $40,000. I am inclined to think that $10,000 would be a fair price."

In the course of our investigation, we found no good reason to question the conclusions stated in that report as above quoted. It will be seen that at that time this office was inclined to think that $10,000 would be a fair price for the property proposed to be transferred to the United States. Mr. Kendrick afterwards informed this office that he was not willing to part with it at that price, and he has produced the affidavits of several parties said to be good judges of the subject, estimating the value much higher, as high we may state from memory, as $75,000 or $80,000. He states that his former offer to take $25,000 was a conditional one, and that the conditions had ceased to exist, that he could obtain more than $10,000 by supplying duplicates from his books for the use of the counties (twenty-three in number) embraced in the military district of Ohio, which, however, except in a few instances, he has declined to supply. He stated to us that he could earn not less than $2,000 net per annum from furnishing copies from his books, and other possible uses of them, if he would enter upon that business, which, however, he has declined to do. Apart from these considerations, it appears that there is no market, or demand, in the ordinary sense, for these records, and hence no market price to be referred to, and no other fixed standard that may be applied as a reasonable and reliable means of fixing the present value thereof.

As indicated in the above quotation from the official report of April 30, 1890, the records of the surveyors of the said military district were made up as incidental to their business, for which they were compensated by the parties for whom they acted. It has been suggested that the statutes of Ohio fixing a rate of payment for the services of officials acting in similar capacities may afford assistance in arriving at the present value of these records, and in reference thereto the following statement and computation is presented, viz:

Section 1157, Revised Statutes of Ohio, provides that county recorders shall charge and collect the following fees: For recording mortage, deed of conveyance, power of attorney, or other instrument of writing, 12 cents for every 100 words; for recording any plat not exceeding six lines $1, and for each additional line 10 cents.

Section 1155, Revised Statutes of Ohio, provides that county recorders shall receive for indexing any lot or parcel of land, 10 cents; and section 1178, Revised Statutes of Ohio, provides that county surveyors shall receive the same fees as are allowed county recorders for like work.

In the acts authorizing the appointment of surveyors for the Virginia military district in Ohio, there seems to have been an absence of any express provision requiring said office to keep any record of the surveys and entries made or the plats and descriptions of land involved. However, a complete record was kept, and estimating the value thereof at the rates now allowed by the laws of Ohio, above cited, to county recorders and surveyors for similar work, the amount would be as follows:

3 books of entries (A, B, and C) containing a total of 1,123,610 words, at 12 cents per 100 words	$1,348.33
6 books of surveys (A, B, C, D, E, and F) containing a total of 1,445,895 words, at 12 cents per 100 words	1,747.07
5,405 plats of 6 lines each, at $1 per plat	5,405.00
10,808 plats of 11 lines each, at $1.50 per plat	16,212.00
1 numerical index of surveys, at 10 cents per lot or parcel of land	162.13
1 numerical index of warrants, at 10 cents per plat or parcel of land	99.59
Value of books in blank, safe, etc	400.00
Total	25,374.12

The above statement is presented for such consideration as it may be thought entitled to as affording some assistance in reaching a determination, and not as indicating that in our opinion the rates fixed by the State statutes for compensation of State officials for prescribed services rendered to parties requiring the same, for important business or other purposes of their own, can be regarded as fixing a price to be paid by the United States in this case. The records in question would, in our opinion, be of greater utility to the United States than they would be to any other possessor. We are of the opinion that in acting upon this matter it should not be the aim of the Government to determine the money value thereof and be governed thereby as in an ordinary business transaction, but that it should be governed by other considerations having reference to the usefulness of the records for public purposes. In this view we submit it as our opinion that the Government should be willing to pay Mr. Kendrick as much as $25,000 for said records, if he would accept that sum therefor, rather than lose the opportunity of acquiring them. That ($25,000) is as much as we think the Government should pay.

Respectfully submitted.

JNO. H. FIMPLE.
WM. A. MOORE.
WM. O. CONWAY.

Hon. W. M. STONE,
Acting Commissioner of the General Land Office.

Estimates of appropriation (special) required for the service by the General Land Office.

For the purchase of the Virginia military-land records, books, maps, etc., from Mr. Samuel Kendrick, surveyor's office, Virginia military district, Chillicothe, Ohio (submitted), $25,000.

NOTE.—The purchase ofthese land records, etc., was recommended to Congress at its last session by this office in a report to the honorable Secretary of the Interior. The amount for which these records are offered for sale to the Government (viz: $25,000) is much less than the price formerly asked therefor, and is based on the report of the commission appointed by this office to examine into their value and condition. A copy of said report is transmitted herewith.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex Doc. No. 73.

APPROPRIATION FOR WORLD'S COLUMBIAN COMMISSION.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

Estimates of appropriations submitted by the President of the World's Columbian Commission for expenses of said Commission for the fiscal years 1893 and 1894.

DECEMBER 9, 1892.—Referred to the Committee on Appropriations and ordered to be printed.

TREASURY DEPARTMENT,
December 8, 1892.

SIR: I have the honor to transmit herewith, for the favorable consideration of Congress, estimates of appropriations submitted by the President of the World's Columbian Commission for expenses of the said Commission, as follows:

For the fiscal year ending June 30—

1894	$148,185.00
1893	27,999.07

Respectfully yours,

CHARLES FOSTER,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE PRESIDENT OF THE
WORLD'S COLUMBIAN COMMISSION,
Chicago, December 1, 1892.

SIR: I herewith transmit to you the following statements in behalf of the World's Columbian Commission, viz.

Exhibit A.—Statement of the liabilities of the World's Columbian Commission due at this date, November 30, 1892, or to become due during the fiscal year ending June 30, 1893, showing the necessity for further appropriation of the sum of $27,999.07.

Exhibit B.—Approximate estimate of appropriations required for the expenses of the World's Columbian Commission from July 1, 1893, to July 1, 1894, amounting to $148,185.

I have the honor to state that said estimates have been made with reference to the strictest economy, and respectfully ask that you will transmit the same to the Congress with the request that it may take such action in the premises as it may deem proper.

I would suggest that the balance, as shown by Exhibit A, should be provided for, the Congress concurring, in the general deficiency bill for the present fiscal year, and the amount estimated in Exhibit B, in the bill commonly known as the sundry civil bill.

The inclosed statements do not include any estimate for the expenses of the Board of Lady Managers.

I have the honor to be, yours very respectfully,

T. W. PALMER,
President of the World's Columbian Commission.

Hon. CHARLES FOSTER,
Secretary of the Treasury.

EXHIBIT A.—*Statement of the liabilities of the World's Columbian Commission, due at this date, November 30, 1892, or to become due during the fiscal year ending June 30, 1893.*

Appropriation for fiscal year ending June 30, 1893		$120,000
Deficit for fiscal year ending June 30, 1892, and paid out of the above appropriation of $120,000	$22,700.13	
Expenditures from July 1, 1892, to December 1, 1892, as per vouchers on file in the Treasury Department, Washington, D. C.	27,000.02	
		$49,700.15
Expenses and approximate estimate of expenses of the Commission, committees, etc., as follows from December 1, 1892, to July 1, 1893; unvouchered bills for rent, printing, stationery, etc.	1,600.00	
Unvouchered claims of Commissioners, etc., account seventh session Commission	5,000.00	
Unvouchered claims of Committee of Architects	1,000.00	
		7,600.00
Council of administration:		
Salaries, 2 members, from November 25, 1892, to July 1, 1893		7,166.60
Director-General's office:		
Director-General's salary, December 1, 1892, to July 1, 1893, at $8,000 per annum	4,673.90	
Director-General's contingent expenses under act of Congress	5,000.00	
Assistant to Director-General, six months, at $5,000 per annum	2,500.00	
Salaries from December 1, 1892, to July 1, 1893:		
Chief clerk, at $3,000 per year	1,750.00	
1 architect, at $3,600 per year	2,100.00	
1 secretary, at $2,400 per year	1,400.00	
1 file clerk, at $1,200 per year	700.00	
1 voucher clerk, at $2,000 per year	1,168.50	
2 record clerks, at $2,100 per year	1,226.90	
2 stenographers, at $2,400	1,400.00	
1 secretary of applications, etc., at $3,000 per year	1,750.00	
1 draftsman, at $2,400 per year	1,400.00	
1 messenger and clerk, at $1,000 per year	584.20	
1 messenger, at $600 per year	350.00	
Stationery and supplies	1,000.00	
Postage and telegrams	500.00	
Traveling expenses, expense of office, incidentals	2,500.00	
		30,003.50

President's office:		
President's salary, December 1, 1892, to July 1, 1893, at $5,000 per year	$2,921.20	
1 messenger, December 1, 1892, to July 1, 1893, at $780 per year	455.70	
Rent of rooms, December 1, 1892, to July 1, 1893	600.00	
Stationery, supplies, printing, incidentals	875.00	
		$4,851.90
Secretary's office:		
Salaries from December 1, 1892, to July 1, 1893:		
Secretary, at $3,000 per year	1,750.00	
Chief clerk, at $2,000 per year	1,168.50	
1 general clerk, at $1,500 per year	875.00	
1 stenographer, at $1,200 per year	700.00	
1 file clerk, at $1,000 per year	584.20	
1 mail clerk, at $780 per year	455.00	
1 messenger, at $600 per year	350.00	
Rent of 3 rooms	875.00	
Stationery, supplies, printing, incidentals	2,500.00	
		9,258.40
Awards committee:		
Balance of $10,000 (allotted by the Board of Control September 17, 1892) unexpended		9,418.52
Commission:		
Amount ordered set apart at the seventh session for the next meeting		15,000.00
Committee meetings, other than the Committee on Awards, including meetings of the Board of Control when Commission is not in session		15,000.00
Deficit for fiscal year ending June 30, 1893		$27,999.07
	147,999.07	147,999.07

EXHIBIT B.—*Approximate estimate of appropriation required for the expenses of the World's Columbian Commission from July 1, 1893, to July 1, 1894.*

One meeting of the Commission during the Exposition		$15,000
Council of administration:		
2 members, at $6,000 per year each		12,000
Director-General's office:		
Director-General's salary	$8,000	
Director-General's contingent expenses	5,000	
1 assistant	5,000	
1 chief clerk	3,000	
1 secretary	2,400	
1 file clerk	1,200	
1 voucher clerks	2,000	
2 record clerks	2,100	
2 stenographers, at $1,200 per year each	2,400	
1 secretary in charge of applications, etc	3,000	
1 messenger and clerk	1,000	
1 messenger	600	
Stationery and supplies	1,500	
Postage, telegrams, etc	1,500	
Incidental expenses	3,600	
		42,300
President's office:		
President	5,000	
Messenger	780	
Stationery, supplies, printing, incidentals	1,500	
		7,280
Secretary's office:		
Secretary	3,000	
Chief clerk	2,000	
General clerk	1,500	
File clerk	1,000	
Stenographer	1,200	
Mail clerk	780	
Messenger	600	
Stationery, supplies, printing, incidentals	4,000	
		14,080

Historian's office:		
Historian	$5,000	
Stationery, supplies, printing, incidentals	525	
		$5,525
Committee meetings, other than Committee on Awards, including meetings of Board of Control when the Commission is not in session		25,000
Commission:		
Contingent expenses	12,000	
One meeting to close up the business	15,000	
		27,000
Total		148,185

OFFICE OF THE PRESIDENT OF
THE WORLD'S COLUMBIAN COMMISSION,
Chicago, Ill., December, 1, 1892.

I do hereby certify that the foregoing estimate is correct and that the expenditures therein estimated for are necessary.

T. W. PALMER,
President of the World's Columbian Commission.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 74.

APPROPRIATION FOR BOARD OF LADY MANAGERS WORLD'S COLUMBIAN EXPOSITION.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

An estimate of appropriation, submitted by the President of the World's Columbian Exposition, for expenses of the Board of Lady Managers for the fiscal year beginning July 1, 1893.

DECEMBER 9, 1892.—Referred to the Committee on Appropriations and ordered to be printed.

TREASURY DEPARTMENT,
December 8, 1892.

SIR: I have the honor to transmit herewith, for the favorable consideration of Congress, an estimate of appropriation submitted by the President of the World's Columbian Commission for expenses of the Board of Lady Managers of the World's Columbian Commission for the fiscal year beginning July 1, 1893, and continuing until the close of the Exposition, amounting to $93,190.

Attention is respectfully invited to the request of the President of the Board of Lady Managers herewith, that the amount, $25,000, included in the estimate for transportation and insurance of loan collections, etc., be made immediately available.

Respectfully, yours,

CHARLES FOSTER,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE PRESIDENT
WORLD'S COLUMBIAN COMMISSION,
Chicago, Ill., December 3, 1892.

SIR: I herewith transmit to you, in behalf of the Board of Lady Managers of the World's Columbian Commission, the following approximate estimate of the appropriation required for the expenses of the Board of Lady Managers, its officers and employés, for the fiscal year

beginning July 1, 1893, and continuing until after the close of the Exposition, amounting to $93,190.

I have the honor to respectfully ask that you will transmit the same to the Congress, with the request that it may take such action in the premises as it may deem proper. I would suggest that the amount estimated in this exhibit should be provided for in the bill commonly known as the "sundry civil bill."

This statement was not embodied in those I sent you on the 1st instant.

I have the honor to be, yours, very respectfully,

T. W. PALMER,
President of the World's Columbian Commission.

HON. CHAS. FOSTER,
Secretary of the Treasury, Washington, D. C.

Approximate estimate of the appropriation required for the expenses of the Board of Lady Managers, its officers and employés, for the fiscal year beginning July 1, 1893, and continuing until after the close of the Exposition.

One meeting of the Board of Lady Managers	$15,000
Two meetings of the Executive Committee	7,500
Salaries of officers, assistants, clerks, and stenographers	15,600
Stationery, printing, etc	12,000
Meetings of special committees in connection with exhibit in Woman's building	12,000
Transportation and insurance of loan collections of an educational nature in accordance with the communication addressed to the honorable Secretary of the Treasury, November 30, 1892 (herewith)	25,000
Incidental expenses impossible to estimate at this time	6,000
Total	93,190

OFFICE OF THE PRESIDENT BOARD OF LADY MANAGERS,
WORLD'S COLUMBIAN EXPOSITION,
Chicago, Ill., November 30, 1892.

DEAR SIR: I desire to call your attention to a matter of great importance to the success of the Columbian Exposition.

In order to promote the educational advantages of the exhibition and to stimulate the production of artistic industries in this country, loan collections of very unique and artistic objects, representing the best work done in past times, have been requested for the benefit of our own designers and artisans.

These objects are not articles of merchandise, but are prized as relics and as specimens of art of a former time. Their owners would not part with them, and they could only be exhibited by the courtesy of the individuals or governments that possess them.

As an instance, I might cite the case of Italy, to which country an invitation was sent from the Board of Lady Managers, and transmitted by the Department of State. This invitation reached Italy at a time when the diplomatic relations were sundered, and the Queen, as a mark of special favor and friendship, volunteered to send a rarely beautiful exhibit comprising her own remarkable historical collection of laces and embroideries, which are of great intrinsic and artistic value, many of the specimens dating back to a period one thousand years before Christ. The Queen of Italy pays for the preparation and installation of this exhibit, together with such other articles as are coming from Italy, but it is of such importance that the collection will be sent through the Italian minister in Washington, who will place it in the hands of the Secretary of State, with the request that a special guard be maintained by the Government during the time of the Exposition. I have recently received a cable asking if the usual guaranty for the insurance, transportation, etc., would be given.

As the owners of these loan collections have no other object than to contribute to the success of the Exposition, common courtesy and established usage require that

this Government should pay for the transportation of such articles to and from the Exposition, and should also insure the owners against loss as far as possible to do so.

This will illustrate many other cases of like kind, and the necessity for an appropriation to be made especially for this purpose. It is believed that the sum of $25,000 will be required to cover this expense, and we therefore ask that this sum be appropriated, with the customary provision that so much thereof as is necessary shall be used in the way indicated.

It is also important this fund should be available at once, as it is now necessary to give guaranties and advance money for the transportation of these articles, and delay in this matter until the close of the session would greatly embarrass the Board of Lady Managers in bringing forward promptly and in time such valuable and useful exhibits.

Asking for favorable consideration of this request, I have the honor to be,

Very respectfully,

BERTHA HONORE PALMER,
President Board of Lady Managers.

Hon. CHARLES FOSTER,
Secretary of the Treasury.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 75.

RANK OF RETIRING ARMY OFFICERS.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

A communication addressed to the chairman of the Committee on Military Affairs, signed by certain Army officers stationed at Fort Sill, Okla., requesting the introduction and passage of a bill to fix the rank of retiring Army officers.

DECEMBER 9, 1892.—Referred to the Committee on Military Affairs and ordered to be printed.

WAR DEPARTMENT,
Washington, December 7, 1892.

SIR: I have the honor to transmit herewith a communication addressed to the chairman of the Committee on Military Affairs, and signed by certain officers of the Army stationed at Fort Sill, Okla., requesting the introduction and passage by Congress of a bill to fix the rank of officers of the Army of the United States retiring after long and faithful service, the proposed bill being printed and made a part of their communication.

In submitting the same to this Department the Major-General Commanding the Army remarks that he is not prepared to recommend the bill.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

FORT SILL, *Okla., November 17, 1892.*

Hon. J. H. OUTHWAITE,
Chairman Military Committee U. S. House of Representatives,
Washington, D. C. (Through the War Department.)

SIR: The undersigned, officers of the U. S. Army, request your earnest support to introduce and have passed in the United States Congress the following bill:

AN ACT to fix the rank of officers of the Army of the United States retiring after long and faithful service.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That after the passage of this act all officers of the Army of the United States, below the grade of major-general, who shall have served in the war for the suppression of the rebellion and who shall have attained thirty years or more of faithful service, shall, upon their own application, be retired from active service, with one additional grade above the actual rank held at date of such retirement: *Provided*, That such application for retirement under this act shall be made within three years from the passage of the same.

All acts heretofore passed which are inconsistent with this act are hereby repealed for the purposes of this act only.

W. M. WATERBURY,
Captain, Thirteenth Infantry.
P. H. ELLIS,
Captain, Thirteenth Infantry.
B. H. ROGERS,
Captain, Thirteenth Infantry.
J. B. GUTHRIE,
Captain, Thirteenth Infantry, U. S. Army.
E. D. THOMAS,
Captain, Fifth Cavalry.
W. S. SCHUYLER,
Captain, Fifth Cavalry.
H. L. SCOTT,
First Lieutenant, Seventh Cavalry.
H. L. BISHOP,
First Lieutenant, Fifth Cavalry.
A. B. SCOTT,
First Lieutenant, Thirteenth Infantry.
P. C. HARRIS,
Second Lieutenant, Thirteenth Infantry.
WM. NEWMAN,
Second Lieutenant, Thirteenth Infantry.
JOHN H. PARKER,
Second Lieutenant, Thirteenth Infantry.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 76.

HAMMOND BAY, LAKE HURON, MICHIGAN.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Hammond Bay, Lake Huron, Michigan, at the mouth of Ocqueoc River.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. William Ludlow, Corps of Engineers, dated November 10, 1892, of a preliminary examination of Hammond Bay, Lake Huron, Michigan, at the mouth of Ocqueoc River, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, forwarded by Maj. William Ludlow, Corps of Engineers, under date of November 10, 1892, upon preliminary examination of Hammond Bay, Lake Huron, Michigan, at the mouth of Ocqueoc River, made to comply with the provisions of river and harbor act approved July 13, 1892.

Major Ludlow reports the conclusion that the locality in question is not at this time worthy of improvement by the General Government.

The Division Engineer, Col. O. M. Poe, Corps of Engineers, and this office concur in the views of the district engineer.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HAMMOND BAY, LAKE HURON, MICHIGAN, AT THE MOUTH OF OCQUEOC RIVER.

UNITED STATES ENGINEER OFFICE,
Detroit, Mich., November 10, 1892.

GENERAL: I have the honor to forward herewith report of a preliminary examination of the mouth of Ocqueoc River, Hammond Bay, Lake Huron, Michigan, authorized by river and harbor act of July 13, 1892, and made under direction of Col. O. M. Poe, Corps of Engineers, to whom the report is addressed by the assistant engineer, Mr. B. H. Muehle.

The ascertained facts are such as to warrant the conclusion that the locality in question is not at this time worthy of improvement by the General Government, and no detailed survey is required.

Very respectfully,

WILLIAM LUDLOW,
Major, Corps of Engineers, Bvt. Lieut. Col., U. S. A.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., November 11, 1892.

Respectfully forwarded to the office of the Chief of Engineers.

I concur in the views of the district engineer.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

REPORT OF MR. B. H. MUEHLE, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
Detroit, Mich., October 28, 1892.

GENERAL: In compliance with your instructions of the 6th ultimo, I visited the mouth of the Ocqueoc River, Hammond Bay, Lake Huron, on the 8th of September, 1892, and now have the honor to report as follows:

Ocqueoc River is a stream about 50 feet wide, which debouches into Hammond Bay, a part of Lake Huron, at a point on the easterly shore of the State of Michigan, about 30 miles southeasterly from Cheboygan Harbor and about 17 miles northwesterly from Rogers City. The improvements near the mouth of the Ocqueoc River consist of one sawmill, that of the Hammond Bay Lumber Company, built about three years ago, and another in course of construction, belonging to the Presque Isle Lumber Company. The first named is situated about a quarter of a mile east of the mouth of the Ocqueoc River, is provided with a lumber dock built

out into the bay, and has been doing a small business sawing logs brought down from the headwaters of the Ocqueoc. I was informed during my visit that this sawmill was about to discontinue operations on account of scarcity of logs.

The Presque Isle Lumber Company has a sawmill in course of construction, about 600 feet east of the mouth of the Ocqueoc River (only a skeleton frame being up and some machinery in place). A store or warehouse, a hotel or boarding-house, blacksmith shop, and a few dwelling houses comprise the settlement which provides accommodation for the men employed in construction and operation of the sawmills. During my visit I found that the Presque Isle Lumber Company was in financial distress, all goods and chattels belonging to the company either having already been seized or were then passing into the hands of the sheriff of the county. Col. Corcoran, the resident manager, informed me that the financial troubles would be overcome in the course of thirty days. The same gentleman stated that it was the intention of his company to build up and collect a large sawmill plant in this locality, representing the total output of logs of all kinds of timber from the land through which the Ocqueoc River flows, as being several hundred millions feet. The present facilities for shipping lumber and cedar posts consist in a dock or pier built of driven piles, and a superstructure formed of round poles or timber from 4 to 6 inches in diameter. At the outer or lake end of this dock I found 12 feet depth of water, with 15 feet a short distance out in the bay. A large schooner was at anchor about 400 feet north from the end of the pier, loading cedar posts or ties from a balloon raft alongside, probably for the purpose of saving charges for dockage.

Col. Corcoran, who appears to have instigated this preliminary examination by appealing to the Congressman of the district, expressed his urgent desire that a Government appropriation be made for the purpose of removing a sand bar alongside of Presque Isle Lumber Company's pier, so that vessels could load directly from the side of said pier throughout its entire length, and even enter the mouth of the Ocqueoc River in case of heavy weather.

The accompanying sketch* represents a part of the shore of Hammond Bay, near the mouth of the Ocqueoc River, traced from a map of a proposed village plat by Mr. Paul Cornevin, C. E., with the sawmills and docks sketched thereon by Mr. Thomas Crow, a millwright of Rogers City, Mich. With the exception of the main road running north and leading from the surrounding hills to the shore, the village plat exists only on paper so far as I could discover during my visit.

In view, therefore, of the primitive condition of the present and contemplated improvements at the mouth of the Ocqueoc River, this locality can not well be considered as worthy of improvement by the General Government, and it is doubtful if a hydrographic survey of the harbor or part of Hammond Bay in this vicinity would lead to any other conclusion.

Very respectfully, your obedient servant,

B. H. MUEHLE,
Assistant Engineer.

Gen. O. M. POE,
Colonel of Engineers, U. S. A.

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* Not printed.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 77.

CHANNEL TO CONNECT MOUTH OF ARTHUR KILL WITH NEW YORK HARBOR.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination for channel west of Robbins Reef light-house to connect the mouth of Arthur Kill with New York Harbor, New York.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. G. L. Gillespie, Corps of Engineers, dated August 1, 1892, of a preliminary examination for channel west of Robbins Reef light-house to connect the mouth of Arthur Kill with New York Harbor, New York, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, dated August 1, 1892, by Lieut. Col. G. L. Gillespie, Corps of Engineers, of the results of preliminary examination for channel west of Robbins Reef light-house to connect the mouth of Arthur Kill with New York Harbor, New York, made to comply with the provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Gillespie, concurred in by this office, that the proposed channel is not worthy of improvement by the General Government.

Very respectfully, your obedient servant.

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION FOR CHANNEL WEST OF ROBBINS REEF LIGHT-HOUSE TO CONNECT THE MOUTH OF ARTHUR KILL WITH NEW YORK HARBOR, NEW YORK.

ENGINEER OFFICE, U. S. ARMY,
New York, August 1, 1892.

GENERAL: In compliance with instructions contained in letter of Chief of Engineers, dated July 14, 1892, I have the honor to submit the following report in regard to preliminary examination, "for channel west of Robbins Reef light-house, to connect the mouth of Arthur Kill with New York Harbor, New York," for which provision is contained in section 6, river and harbor act July 13, 1892.

For many years the towing companies interested in the navigation between the Raritan and Passaic rivers, and New York Harbor through Kill van Kull, have made efforts to secure appropriation from Congress for opening a short and sheltered interior channel across Jersey Flats. The river and harbor act March 3, 1881, provided for the survey of such a channel, 21 feet deep, mean low water, from Communipaw to Constable Hook, and the report thereon (Annual Report Chief of Engineers, 1882, Part I, p. 719) gives the estimated cost of the work, $7,000,000, the great cost being due to a reef of rock underlying the shoal to the eastward of Cavens Point.

The channel now proposed to be surveyed is not definitely located by the act of July 13, 1892, but as I have before me a copy of the map accompanying the petition which was sent to Congress urging the survey, I am able to describe it very accurately. The wish of the projectors, as stated in their petition, is anchorage for vessels and tows on the southern edge of the flats immediately to the eastward of Constable Point, 2,000 feet wide, 2,500 feet long, and 15 feet deep, mean low water, from which a channel 300 feet wide and 15 feet deep shall lead in a straight line northeastward about 1 mile to the southward of Oyster Island, on the eastern margin of the shoal.

The benefits to commerce which it is alleged will follow the opening of the channel are: (*a*) Shortening distance between Kill van Kull and New York City; (*b*) avoidance of strong tides which are encountered by tows making southern detour of Robbins Reef light-house, especially during stormy weather; (*c*) anchorage for tows awaiting tides.

In regard to the first, it may be said that the distance around the light-house to outlet of channel is $2\frac{1}{5}$ miles, and that through the channel to westward of the light is $1\frac{4}{5}$ miles, a difference of two-fifths of a mile. As located, the proposed improvement will lie partly inside of the pierhead line established by the Secretary of War August 19, 1891, and if shifted farther to the eastward close up to Robbins Reef light-house, as will be necessary to avoid the harbor lines, the difference of distance in the two routes will be reduced to one-fourth of a mile. The "shortening of distance" is therefore of little value.

The tugboats which will use this channel draw from 12 to 15 feet, and the barges about 10 feet. The width of water way between established pierhead lines at the immediate entrance to the Kills westward of Robbins Reef Light-House is 2,500 feet, affording ample anchorage for all classes of vessels and tows. No further anchorage is required.

The other consideration of tides is of greater importance and has been weighed with care. The southern end of the flats at the turn of the tides is subject to tide rips, making the navigation past the light-house on either side somewhat difficult for tows or small vessels.

The opening of the proposed channel will not modify tidal conditions, but may give the tows slightly increased facilities of navigation in relation to direction of tidal flow, and will also enable them to enter the upper bay in a more direct way and less liable to collision with passing vessels or steamers on emerging from the Kills. The main advantage, it appears to me, that a new route will have, if any, over the existing one is this partial shelter which will be given to tows when passing over the southeastern point of the shoal for the short distance of 2 miles.

At the eastern entrance to the Kills the Main Ship Channel through the Lower Bay is 5,800 feet wide between 24-foot contours. At Robbins Reef Light-House it is 5,000 feet wide, and widens again at Oyster Island to 5,800 feet.

All the shipping of the port by the southern entrance passes the Robbins Reef Light, and vessels or tows coming from or going to the Kills are exposed to collision with vessels or steamers passing through the Main Ship Channel in the vicinity of Robbins Reef Light. Such casualties, however, are not frequent, and the main benefit, as has been said, to be derived from a channel to the westward of the light-house lies in the fact that vessels and tows in going to and from New York will not be required to navigate the Main Ship Channel for so long a distance; that is, the period of exposure to collision will be shortened.

The average depth of water in the area inclosed by the proposed anchorage is from 11 feet to 12 feet, and in the channel to the northward from $5\frac{1}{2}$ feet to $7\frac{1}{2}$ feet, mean low water. The material is believed to be sand alone.

* * * * * * *

In my judgment the proposed channel west of Robbins Reef Light-House to connect the mouth of Arthur Kill with New York Harbor is not worthy of improvement. The slight benefit to commerce which will follow the improvement will not justify the * * * cost of the work.

A map* of Jersey Flats accompanies this report, upon which the proposed channel is delineated in its relation to Kill van Kull, the harbor lines across Jersey Flats, and to Upper New York Bay.

Very respectfully, your obedient servant,

G. L. GILLESPIE,
Lieut. Col. of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

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* Not printed.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 78.

HARBOR AT STOCKBRIDGE, WISCONSIN.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of harbor at Stockbridge, on Lake Winnebago, Wisconsin.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. James F. Gregory, Corps of Engineers, dated August 4, 1892, of a preliminary examination of harbor at Stockbridge, on Lake Winnebago, Wisconsin, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report dated August 4, 1892, by Maj. James F. Gregory, Corps of Engineers, of the results of a preliminary examination of harbor at Stockbridge, on Lake Winnebago, Wisconsin, made to comply with requirements of the river and harbor act approved July 13, 1892.

It is the opinion of Maj. Gregory, concurred in by the Division Engineer and by this office, that this locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HARBOR AT STOCKBRIDGE, ON LAKE WINNEBAGO, WISCONSIN.

UNITED STATES ENGINEER OFFICE,
Milwaukee, Wis., August 4, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination made by me on August 2, 1892, in pursuance of instructions contained in letter of Chief of Engineers, dated July 14, 1892, and to comply with requirement of item contained in section 6, river and harbor act of July 13, 1892, as follows: "Harbor at Stockbridge, on Lake Winnebago, Wisconsin."

This harbor is the mouth of Mud Creek, on the east shore of Lake Winnebago, which empties into the lake at a point nearly opposite the city of Oshkosh. It is about 1½ miles from the village of Stockbridge. The mouth of the creek has been dredged by private enterprise, and a number of piles driven to facilitate entrance, so that vessels can enter, at present high stage of water, drawing about 5 feet. There is no general commerce, but there is one small steamer which, I am informed, makes two round trips to Oshkosh on each of three days of the week during the summer season. Her captain reports that during the season of 1891, running sixty-eight days, the steamer *Reed* carried 3,455 passengers (this includes excursionists), and 600 tons of general merchandise.

The harbor could be improved by dredging and piling the channel entrance and excavating a winding basin.

The land on both sides of the creek is private property, a sufficient amount of which, I am informed, would be donated in case the improvement of the harbor is undertaken by the United States.

But, for the reasons that there is no general commerce, and little is likely to be developed in the near future, as the surrounding country is entirely agricultural, I have to report that, in my opinion, this harbor is not at present worthy of improvement by the General Government.

Very respectfully, your obedient servant,

JAMES F. GREGORY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., August 6, 1892.

Respectfully forwarded to the office of the Chief of Engineers.
I concur in the opinion of the district engineer.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 79.

SPOKANE RIVER, IDAHO.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Spokane River, Idaho, from Post Falls to Lake Coeur d'Alene.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Capt. Thomas W. Symons, Corps of Engineers, dated September 7, 1892, of a preliminary examination of Spokane River, Idaho, from Post Falls to Lake Coeur d'Alene, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated September 7, 1892, by Capt. Thomas W. Symons, Corps of Engineers, upon preliminary examination of Spokane River, Idaho, from Post Falls to Lake Coeur d'Alene, made in compliance with provisions of river and harbor act approved July 13, 1892.

Capt. Symons is of the opinion that this section of the Spokane River is worthy of improvement by the General Government to the extent of providing an all-the-year navigation for boats drawing 3 feet of water, provided a careful survey shows the practicability of making the improvement at a moderate cost and without seriously interfering with vested interests; and the cost of such a survey is estimated at $600.

Col. G. H. Mendell, Corps of Engineers, the division engineer, reports that, for the reasons stated in Capt. Symons's report, Spokane River, from Post Falls to Coeur d'Alene, is regarded as worthy of improvement by the General Government to the extent of a survey which shall determine whether or not it shall be practicable and expedient to make the river navigable by a dam at Post Falls.

In the judgment of this office, the locality in question is not, at present, worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF SPOKANE RIVER, IDAHO, FROM POST FALLS TO LAKE COEUR D'ALENE.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, September 7, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of "Spokane River, Idaho, from Post Falls to Lake Coeur d'Alene."

The Spokane River is the outlet of Lake Coeur d'Alene, which lake receives the drainage from the western slopes of the Coeur d'Alene mountains for a length of 100 miles. The Spokane River, about 150 miles in length, flows into the Columbia at what is known as the "Big Bend." About 8 miles from the lake is situated the town of Post Falls at a point where the river has a natural fall of about 40 feet. Thirty miles farther down the river is the city of Spokane Falls, where the river has a fall of 156 feet. From the lake to Post Falls there are no rapids or bed rock to interfere with navigation, the river flows over a bed of gravel and bowlders, and has a general depth at low water of about 3 feet. Just at the head of the river at the lake there is a bar upon which the navigable depth is reduced to probably 2 feet at low water, and part way down is another bar upon which is an equal depth.

The Northern Pacific Railway has a branch from its main line at Hauser Junction passing through Post Falls to Coeur d'Alene City, which is situated very near the outlet of the lake, the head of the Spokane River. Connecting with this railroad are a number of steamers which run to various points on the lake and up the Coeur d'Alene, St. Joseph, and St. Marys rivers. It is the desire of the people of Post Falls that this navigation of the lake should extend down the Spokane River to Post Falls, in order that those falls may be utilized for the manufacture of lumber and flour, and possibly the smelting of ores and other uses (and the raw materials be brought to the town and falls by water) and the finished products taken away and distributed by water. There is, at present, no navigation on this portion of the river on account of the shallowness of the water at the low stages of the lake and river. There is no doubt but that a very considerable benefit could be derived by the country if navigation could be extended from the lake to Post Falls.

Two methods seem to be possible or available for arriving at the desired end; one would be the dredging out of a deep channel through the gravel bars, which at present limit the depth of water. This dredging in possible combination with contraction works could unquestionably be depended upon to give sufficient navigable depth for the steamers plying on the lake to reach Post Falls, but it would possibly be found

objectionable on account of damage to vested interests relating to the water power now being utilized, and which will be utilized at Post Falls and Spokane Falls. Coeur d'Alene Lake forms a natural reservoir for the storage of water, which reservoir acts to materially keep up the low-water flow in the Spokane River. Any increase in the low-water outlet capacity of the river would act detrimentally by reducing the low-water flow available for water power and manufacturing purposes, and I do not think that any scheme of improvement should be considered which would tend to detract from the value of the lake as a storage reservoir.

A second way of providing the increased facilities for navigation would be by raising the dam now built at Post Falls, and thereby keeping up the level of the water in the lake and river so as to give a sufficient depth for navigation. I am given to understand that if the raising of this dam were authorized that the people there interested in the water power would do it themselves, thereby increasing and benefiting their water power and furnishing increased facilities for navigation. The only objection to this course would be that it might damage some meadow lands along the lake and the lower reaches of the Cœur d' Alene and St. Joseph rivers by causing the high water of the lake to remain upon them for a greater length of time than is the case at present.

A comprehensive survey is needed to ascertain what would be the effect of raising the dam at Post Falls a sufficient number of feet to give navigation in the river. It is altogether probable that the dam could be so constructed as to furnish facilities equal to those at present existing for the discharge of the water at the high stages of the lake, and yet retain at a higher elevation than now the low-water level of the lake and river.

In my opinion, the Spokane River, from Post Falls to Lake Cœur d'Alene, is worthy of improvement by the General Government to the extent of providing an all-the-year navigation for boats drawing 3 feet of water, provided a careful survey shows the practicability of making the improvement at a moderate cost and without seriously interfering with vested interests. It is estimated that the required survey, with report, project, and estimate of cost, can be made for $600.

I append hereto a letter from Mr. Charles W. Clarke, of Post Falls.

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., November 7, 1892.

Respectfully forwarded to the Chief of Engineers.

For reasons herein stated, Spokane River, from Post Falls to Cœur d'Alene, is regarded as worthy of improvement by the General Government to the extent of a survey, which shall determine whether or not it shall be practicable and expedient to make the river navigable by a dam at Post Falls.

G. H. MENDELL,
Colonel, Corps of Engineers,
Division Engineer.

LETTER OF CLARKE BROTHERS.

POST FALLS, IDAHO, *July 26, 1892.*

DEAR SIR: Your favor of the 21st instant, addressed to the mayor of Post Falls, and asking for information concerning the Spokane River and the desires of the people of this region in the matter of the improvement of that river from this point to Lake Cœur d'Alene, has been referred to us for a reply.

You are familiar with the river at Spokane Falls. It has the same volume here as there. No tributary enters the stream betwixt Lake Cœur d'Alene and Spokane Falls.

It is from 8 to 9 miles by river to the lake. The lower 4 miles is dead water, the backset from the dam at this place, and requires little or no attention.

In the upper half are two riffles, one in the nature of a bar at the outlet of the lake and a space a quarter of a mile long or more where in low water the river spreads out in rapid shallows.

The obstacles there consist chiefly of loose bowlders of varying size, mostly small. At one point only, it is said, a ledge crosses on the bottom of the channel some 40 feet wide.

The lower riffle is three-fourths of a mile in length, or thereabouts. So far as known the obstacles comprise loose bowlders only, none more than 2 feet in diameter. An attempt was made by interested local parties last year to clear this riffle, but from lack of engineering skill, proper machinery, and sufficient capital, it was a failure. We think that with the assent and approval of a Government engineer additional height could be given to the dam here, enough to carry the backwater beyond this lower riffle without injury to any one.

The desire of the people in this vicinity is not to increase the escape from the lake, but to concentrate the flow within narrower and deeper bounds at the two points indicated, so that the same volume of water will allow of summer navigation.

As it is now, during the months of July, August, and September, the period of low water, navigation is practically suspended, there being only 20 to 24 inches of water on the riffles, and the obstacles in form to make steamboating difficult. As the summer is the vital time, navigation here has therefore received no systematic encouragement.

Post Falls has a first-class water power, a level and spacious townsite, fine timber resources, and with small outlay could be made the foot of navigation. We have a sawmill, two shingle mills, and flour mill, all of which need free water communication with the lake in order to reach the trade of the Cœur d'Alene, St. Joe, and St. Maries River valleys, and of the newly opened reservation fronting on the lake, as well as to make connection at Harrison with the Union Pacific Railroad, giving a competing outlet, and also to barge in grain to the flour mill from the Palouse country, via Rockford Landing. Free access to this point of the ores of the new mines on the Cœur d'Alene and St. Joe rivers for smelting and concentrating purposes is also a contingent consideration.

Nearly all the water power here is in the hands of acreage owners, who offer free power to industries. The Power Company is now arranging to give power to a standard-gauge electric line from Spokane to Cœur d'Alene, which is destined to revolutionize values in the Spokane Valley. An irrigation company is also in prospect, to water it from this point, all of which will serve to cut the valley into small holdings and transform it into a fruit-growing and residence district.

Post Falls has all the natural elements for a good manufacturing town, and, with suitable facilities for water transportation and communication with the upper country, will attract capital and population, and be of material help to this whole region.

Any further information we can give, or anything we can do to forward your operations here, will have our prompt attention.

Very truly yours,

CLARKE BROTHERS,
By CHARLES W. CLARKE.

Capt. THOMAS W. SYMONS, U. S. A.

P. S.—My brother denies the 40-foot ledge in bottom of channel, above referred to, says latest examination shows the entire river bed to be lune, but difficult to handle without heavy apparatus.

C. W. C.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 80.

BERRIANS CREEK, LONG ISLAND, NEW YORK.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Berrians Creek, Long Island, New York.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Col. D. C. Houston, Corps of Engineers, dated November 1, 1892, of a preliminary examination of Berrians Creek, Long Island, New York, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Maj. Gen., Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated November 1, 1892, by Col. D. C. Houston, Corps of Engineers, of the results of a preliminary examination of Berrians Creek, Long Island, New York, made to comply with provisions of the river and harbor act approved July 13, 1892.

Col. Houston is of opinion that the creek is not worthy of improvement by the General Government, and I concur in his views.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF BERRIANS CREEK, LONG ISLAND, NEW YORK.

ENGINEER OFFICE, U. S. ARMY,
New York, N. Y., November 1, 1892.

GENERAL: I have the honor to submit the following report on preliminary examination of Berrians Creek, Long Island, New York, made in pursuance of the river and harbor act of July 13, 1892.

This creek, which is not named on the published charts, is a small tidal branch of the East River, New York, on the north shore of Long Island, 3 miles north and east from Hell Gate by channel, as shown on the attached tracing.* Berrians Island, at the mouth of the creek, divides the outlet into two channels, one extending northwesterly to East River, the other easterly to Bowery Bay. Originally the creek was about a mile long, extending southwestwardly from the entrance for about 2,000 feet, thence eastwardly nearly to Bowery Bay; the creek was bordered by salt meadows. Recent improvements have resulted in filling up and grading part of these meadows and of the creek, so that now it is about 2,000 feet long. Its original condition is shown on the U. S. Coast and Geodetic Survey Chart of the western end of Long Island Sound, published in 1855 and issued in 1878. The mean rise of tide is 7 feet.

In the creek proper the bed is bare nearly everywhere at ordinary low tide, and the width at high water ranges from 40 to 150 feet, the bottom being mud.

In the northwest entrance channel, the mean low-water depth near the mouth of the creek is 2½ feet for a short distance, when it increases to over 10 feet, and thence to deep water in East River there is apparently no place where a depth of 6 feet can not be found in the channel. This entrance channel is narrow, somewhat crooked, and at the outer end has a bottom of coarse gravel, with perhaps some cobbles. Elsewhere it is of mud of different degrees of hardness or light sand. The entire length of this entrance from deep water in East River to the mouth of the creek is 4,500 feet.

In the east entrance the channel depth is 3 to 3½ feet for a distance of 2,000 feet from the mouth of the creek to deep water outside of Bowery Bay. This channel is not well defined, having but slightly greater depth than the extensive mud flats on either side. The bottom of the channel is also mud.

The improvement desired is the securing of a channel sufficient to admit at ordinary high water the vessels which bring the coal and materials used for the settlement known as "Steinway," the upper part of Long Island City. The desired depth and width are reported to be 14 feet depth at high water (7 feet at mean low water) and 80 feet width, except in the upper part of the creek, where 40 to 60 feet would suffice.

* * * * * * *

The business which would be benefited by such an improvement is conducted at four docks, all on the right (east) bank of the creek, three near the mouth and one about 1,000 feet inland, as follows, in order from the mouth upstream: Oakes Manufacturing Company, wood dyes, etc., Astoria Veneering Company, Steinway Piano Factory, coal yards of George H. Smith, and the supplies of the Steinway and Hunters Point Railroad Company, and the Astoria Silk Works.

This is represented as amounting in total to about 161,000 tons last year, of which over two-thirds is coal and lumber. Interested parties

* Not printed.

estimate that the annual tonnage would be doubled if the channel were improved as desired.

A considerable part of the freight received is lightered in New York Harbor, because the vessels bringing it can not approach the wharves at any stage of tide. Vessels for Berrians Creek are generally towed through the East River and to the docks, and the entrance used is uniformly the east channel. There is an impression among towboat captains that the northwest channel is dangerous on account of rocks. The preliminary examination indicates that there are no rocks there which could not easily be avoided, but no survey of the locality has been made in greater detail than the U. S. Coast and Geodetic Survey Chart, East River from Lawrence Point to Throgs Neck, scale $\frac{1}{10000}$, issued 1888.

I inclose herewith a communication from Mr. W. H. Williams, president of the Astoria Veneering Works, giving statistics of tonnage.

While there is a large amount of business done at Steinway and a prospect of increase by the rapid development of the surroundings of New York City, I do not consider that the improvement asked for would be of any public benefit. It would reduce somewhat the cost of freight on materials shipped to and from the locality, but would not probably affect the cost to consumers of the articles manufactured there. From the information obtainable, I am of opinion that the creek is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

D. C. HOUSTON,
Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

LETTER OF MR. W. H. WILLIAMS, PRESIDENT OF THE ASTORIA VENEER MILLS.

ASTORIA VENEER MILLS,
New York, October 8, 1892.

DEAR SIR: Complying with your request to furnish statistics as to the proximate amount of tonnage per year 1891, received at Steinway, Long Island, that would, if Berrians Creek was deepened, come through that channel, are as follows:

	Tons.
Total amount of tonnage received by Steinway & Sons, per annum	4,000
Shipments, per annum	2,000
Francis J. Oaks Manufacturing Co., present tonnage per day:	
Received	50
Delivered	22
With the improvement of Berrians Creek it would amount to daily	130
Steinway and Hunters Point Railroad received last year (freight)	6,000
Astoria Silk Works last year (freight)	3,000
George H. Smith, last year (freight)	25,000
Astoria Veneer Mills:	
Received (per annum)	60,000
Delivered (per annum)	40,000

The depth required at low water would be 7 feet. With this improvement to the creek it would allow that portion of Long Island a ferry slip, as the College Point Ferry Company would give us a landing there. It would also enable us to bring in vessels that now have to be unloaded and their cargoes brought in by lighter altogether.

The names of the manufacturers on this list with the proposed improvement of Berrians Creek would double the tonnage per annum.

Hoping that you will give this your consideration, I remain,
Respectfully yours,

W. H. WILLIAMS,
ENGINEER OFFICE, U. S. ARMY.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 81.

COOPER CREEK, NEW JERSEY.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Cooper Creek, New Jersey.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. C. W. Raymond, Corps of Engineers, dated August 13, 1892, of a preliminary examination of Cooper Creek, New Jersey, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated August 13, 1892, by Maj. C. W. Raymond, Corps of Engineers, of the preliminary examination of Cooper Creek, New Jersey, made to comply with provisions of the river and harbor act approved July 13, 1892.

Maj. Raymond states that, in his opinion, Cooper Creek is worthy of improvement by the General Government and submits an estimate of $300 as cost of the survey necessary for preparation of plan for its improvement.

The views of Maj. Raymond are concurred in by the division engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF COOPER CREEK, NEW JERSEY.

UNITED STATES ENGINEER OFFICE,
Philadelphia, Pa., August 13, 1892.

GENERAL: In compliance with instructions contained in Department letter dated July 14, 1892, I have the honor to submit the following report upon a preliminary examination of Cooper Creek, New Jersey, in accordance with a provision of the river and harbor act approved July 13, 1892.

This creek rises in the eastern part of Camden County, N. J., pursues a northwesterly course, passing along the northern boundary of the city of Camden, and enters the Delaware River just above Cooper Point. It is navigable for a distance of 9 miles from its mouth for vessels drawing 5 feet of water and for the first 5 miles for vessels of 11½ feet draft. The navigable portion is generally bordered by low ground about a quarter of a mile in width on each side, which is protected from overflow at high water by earth banks, except where it has been artificially filled in. Back of this margin of lower land is a broad flat country but little above high water, which embraces the larger portion of the watershed drained by the creek.

The improvement desired is a channel 70 feet wide and 18 feet deep at mean high water from Browning's Chemical Works to the mouth of the creek, a distance a little less than 1½ miles, and a channel of the same dimensions through the bar just outside of the mouth, a further distance of about 400 feet. * * *

The mean range of tide over this reach is about 6 feet. At Browning's Chemical Works, which are about 1½ miles from the mouth, freshets raise the water 1 to 4 feet, but seldom more than 2 feet, above tide water. The width of the stream below Browning's averages about 80 feet at low water and about 120 feet between its banks, and carries in its channel a depth of 12 to 15 feet, except a bar between the upper bridges and one below the mouth, the former carrying a minimum depth of 9½ feet and the latter 13½ feet at mean high water.

There are three bridges over this portion of the creek: a county road bridge at State street, with a draw of 38 feet; another at Federal street, with a draw of 40 feet, and the Camden and Amboy Railroad bridge, just below Federal street, with a draw of 40 feet. The drawbridge at Federal street is not now in working order, but proceedings have been taken to have it repaired.

The pipes of the city waterworks cross the bed of the creek at State street at a high-water depth of 12 depth; but it is understood that assurances have been given by the city officials that they will lower the pipes to the desired depth. All the material dredged from the creek can probably be deposited on the adjacent banks without objection from the owners of the land; but in order to cast it over much of it will have to be dredged twice. The material dredged from the outer bar will require boating away in scows.

Of the more important industries concerned in the navigation of the creek, there are nine extensive manufacturing plants, occupying from 2 to 11 acres of space, and employing from 60 to 800 workers each, consisting of 1 woolen mill, 1 nickel works, 4 chemical works, 1 glassworks, and 2 ironworks.

The following statistics of the commerce of the creek for the calendar year 1891 were furnished by shippers and consignees:

Freight statement.

Articles.	Gross tons.	Value.
ARRIVING.		
Coal	59,642	$178,391
Cordwood	1,600	4,500
Chemicals	4,400	102,000
Brick	1,300	4,813
Sand	825	425
Stone, building	3,333	4,112
Logwood and other dyewoods	8,486	222,650
Lumber	600	6,000
Pig iron	29,500	444,000
Phosphate rock	9,200	75,000
Manure	30,000	15,000
Sumac	540	30,780
Hay	1,000	8,200
Miscellaneous	4,000	8,000
Total	154,426	1,103,871
DEPARTING.		
Dyewoods	310	8,750
Acids	1,000	50,000
Extracts	134	22,512
Fertilizers	1,000	20,000
Manufactured iron	18,000	540,000
Total	20,444	641,262
Total arriving and departing	174,870	1,745,133

Vessel statement.

Sailing vessels arriving	26
Canal boats and barges:	
Arriving	1,240
Departing	196
Total loaded vessels arriving and departing	1,462

It is claimed that with the proposed improvement of navigation the most economical way of receiving the raw materials at the manufactories and shipping away the manufactured products would be by schooners directly to and from their wharves, but that at present the greater portion comes and goes by rail, owing to the expense of lightering from vessels in the Delaware River on account of lack of sufficient depth in the creek and over the bar at the mouth.

The improvement of the creek channel would probably be permanent. This is inferred from the flatness of the watershed, the moderate freshets, and the general absence of bars.

The permanent maintenance of the cut through the bar at the mouth would probably require occasional dredging or the construction of dikes. The best method of maintaining this part of the channel, and the probable cost of maintenance, can only be determined from a detailed survey.

In my opinion Cooper Creek is worthy of improvement by the General Government. A survey of the creek, with the view of submitting plan and estimate for its improvement, is estimated to cost $300.

Very respectfully, your obedient servant,

C. W. RAYMOND,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Henry L. Abbot, Corps of Engineers, Division Engineer, Northeast Division.)

[First indorsement.]

NORTHEAST DIVISION, ENGINEER OFFICE,
New York, August 20, 1892.

Respectfully forwarded to the Chief of Engineers, U. S. Army.

For the reasons herein stated I concur with Major Raymond in considering Cooper Creek worthy of improvement by the General Government; and that the estimated cost of $300 for a survey, with the view of submitting plan and estimate for its improvement, is reasonable.

HENRY L. ABBOT,
Colonel of Engineers, Bvt. Brig. Genl., U. S. A.,
Engineer, Northeast Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 82.

NORWALK HARBOR, CONNECTICUT.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Norwalk Harbor, Connecticut.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Col. D. C. Houston, Corps of Engineers, dated November 3, 1892, of a preliminary examination of Norwalk Harbor, Connecticut, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated November 3, 1892, by Col. D. C. Houston, Corps of Engineers, on preliminary examination of Norwalk Harbor, Connecticut, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Col. Houston, concurred in by this office, that Norwalk Harbor is worthy of improvement by the General Government.

It is estimated that $500 will be required for surveys necessary to preparation of plan and project for improvement proposed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF NORWALK HARBOR, CONNECTICUT.

ENGINEER OFFICE, U. S. ARMY,
New York, N. Y., November 3, 1892.

GENERAL: I have the honor to submit the following report on preliminary examination of Norwalk Harbor, Connecticut, made in pursuance of the river and harbor act of July 13, 1892.

There has been appropriated for the improvement of this harbor, from 1872 to 1890 inclusive, the sum of $83,000, which has been expended in dredging a channel 100 feet wide and 8 feet deep at mean low water up to South Norwalk, and thence to Norwalk 60 to 100 feet wide and 6 feet deep; and in additional dredging to repair and maintain these channels.

Of the total amount appropriated, it is estimated that 36 per cent ($30,000) has been expended in maintaining the channel.

The channel had been wholly completed to dimensions stated above by the fall of 1885, and some parts had been redredged; appropriations since 1885 have been applied wholly to maintenance.

The originally projected width of 100 feet above South Norwalk was reduced to 60 feet on account of the large cost of maintenance, owing to small annual appropriations. When the improvement was commenced by the United States the low-water depth to South Norwalk was 5 feet and to Norwalk but 1 foot.

The project heretofore contemplated has been practically completed, but further improvements are now desired by the people of Norwalk and South Norwalk.

It is necessary, in the first place, that the present channel be maintained, and it is also desirable that certain sharp bends be cut off so as to give greater ease to navigation, as follows:

At the entrance to the harbor, south of Keysers Point, where the channel is very tortuous.

Above this point to the railroad bridge it is desirable that the channel be straightened and widened.

For the location of these points I would refer to the U. S. Coast and Geodetic Survey Chart of "Entrances to the Norwalk and Saugatuck Rivers," issued April, 1888, which extends up to the railroad bridge.

Above the bridge to the head of navigation, a distance of 1½ miles, periodical dredging will also be necessary to maintain and widen the channel. The location of this portion of the harbor is shown on the accompanying blue print.*

* * * * * * *

It is also suggested by the Norwalk Board of Trade that a "channel should be ultimately dredged through the flat below Jennings to South Norwalk in a substantially straight course, avoiding the crooked and much longer channel around Oyster Shell Point." The location is

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* Not printed.

shown approximately by the dotted red line A——C on the blue print. This is a work of considerable magnitude, which does not appear to be necessary at present. It involves the acquisition of a right of way through private property, which, however, it is stated, can be obtained without cost to the United States. Borings would be needed to ascertain whether a channel at this locality would require rock excavation. This project would probably meet with opposition from the owners of property on the east side of the existing channel, which would doubtless suffer from the proposed cut.

I am of opinion that this harbor is worthy of improvement by the General Government. It is but the continuation of a useful improvement commenced in 1872 and continued up to 1891.

The annual report of 1892 gives the following statistics for the calendar year ending December 31, 1891, which are the latest I have been able to obtain:

Arrivals and departures of vessels.

[Draft, 7 to 12 feet. Tonnage, 100 to 500 tons.]

Kind of vessels.	No. of round trips.
Steamers	*1,051
Sail vessels	475
Barges and canal boats	600
Total	2,126

Cargoes.

Articles.	Tons.	Estimated value.
Coal	100,000	$400,000
Lumber (16,000,000 feet)	18,500	390,000
General merchandise	250,000	15,000,000
Total	368,500	15,790,000

*I think it would be perfectly fair to add to this report, say 100 trips each of 10 oyster steamers, with an average cargo of 40 tons each, at an average value of $10 per ton, or 1,000 trips—40,000 tons, at $40,000.

The above figures show an increase in freight tonnage of 56,000 tons over that reported for 1890.

One new line of transportation has been established since July 1, 1891.

I submit an estimate of $500 for a survey for the purpose of making a project and estimate of cost of further improvements.

Very respectfully, your obedient servant,

D. C. HOUSTON,
Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 83.

SURVEY OF MISSISSIPPI RIVER NEAR BELLEVUE, IOWA.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the Mississippi River at and near Bellevue, Iowa.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 7, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. A. Mackenzie, Corps of Engineers, dated November 7, 1892, of a preliminary examination of Mississippi River at and near Bellevue, Iowa, with a view to so repairing and fixing dam that ferry channel will be restored, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated November 7, 1892, made by Maj. A. Mackenzie, Corps of Engineers, upon preliminary examination of Mississippi River at and near Bellevue, Iowa, with a view to so repairing and fixing dam that ferry channel will be restored, authorized by the river and harbor act approved July 13, 1892.

Maj. Mackenzie reports that in his opinion the Mississippi River in the locality of Bellevue is worthy of improvement, and the work of restoring the ferry channel by repairing and fixing the dam is a proper one, it being incidental to the work of channel improvement. No special survey of the locality is necessary, and no special appropriation is needed, appropriations being now available for the improvement of the

Mississippi River between the mouth of the Missouri and Minneapolis which can properly be applied to work on the dam when other work is carried out in the vicinity of Bellevue.

The division engineer, Col. O. M. Poe, Corps of Engineers, concurs in the views of Maj. Mackenzie; and it is the opinion of this office that the locality in question is worthy of improvement in the manner indicated.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF MISSISSIPPI RIVER AT AND NEAR BELLEVUE, IOWA, WITH A VIEW TO SO REPAIRING AND FIXING DAM THAT FERRY CHANNEL WILL BE RESTORED.

UNITED STATES ENGINEER OFFICE,
Rock Island, Ill., November 7, 1892.

GENERAL: The river and harbor act of July 13, 1892, provides for a preliminary examination of the "Mississippi River at and near Bellevue, Iowa, with a view to so repairing and fixing dam that ferry channel will be restored." This examination was assigned to me by letter of the Chief of Engineers dated July 14, 1892.

A detailed examination of the locality was made by the crew of the snag boat in September, 1892.

The channel of the Mississippi River in front of Bellevue was formerly divided by an island (No. 249). Beyond this island towards the main Illinois shore, are several sloughs forming other islands.

In 1878, in connection with the improvement of the low-water channel of the Mississippi River, a dam was built by the United States, behind Island 249, for the purpose of cutting off the channel to the left of the island. This dam served its purpose admirably, and materially improved a very troublesome crossing in front of Bellevue.

Previous to the construction of the dam above referred to, and for some time subsequently, the Bellevue ferryboat ran across the head of Island 249 through a cut-off made by the citizens, into Crooked Slough, and through the latter slough to the main Illinois shore. Within the past few years a large sand bar has been moving down along the left bank of the river, and it now at low stages obstructs the entrance to the cut-off, and materially interferes with the successful operation of the ferry.

It is claimed that the dam constructed by the Government behind Island 249 has caused the accumulation of sand referred to, and it is the desire of those representing the interests of Bellevue and its ferry that the dam be so raised as to permit its use as a causeway.

While it is very probable that the movement of the sand would have resulted in the obstruction of the channel and cut-off used by the ferry, even if the dam had not been built, and that the injury to the ferry interests can not be, by any direct evidence, charged to the work of the Government, it is a fact that the dam was built for the purpose of accumulating sand on the left bank, and, whether the existing sand bar is chargeable to the dam or to natural causes, it is quite certain that the dam will maintain the present condition and prevent such movement of sand as might result in a new ferry channel.

Under these conditions it appears proper that the dam be so repaired by the Government as to permit of the construction and maintenance by the ferry company of a causeway, which can be used at times when the stage of water prohibits the passage of the boat over the sand bars, to the main Illinois shore.

The repairing and raising of the dam may not be an absolute necessity in the interest of channel improvement at the present time, but such work can be properly considered as a part of a future plan for additional improvement work in the vicinity of Bellevue. * * *

As the work referred to may be considered a part of the general plan for improving the channel of the Mississippi River, and for the reasons given, I would respectfully report that, in my opinion, the Mississippi River in the locality of Bellevue is worthy of improvement, and the work of restoring the ferry channel by "repairing and fixing dam," being incidental to the work of channel improvement, is a proper one.

Appropriations which are now available for the improvement of the Mississippi River between the mouth of the Missouri and Minneapolis can be properly applied to the "repairing and fixing of dam" when other work of improvement is carried out in the vicinity of Bellevue. Such work will probably be undertaken under approved projects next year.

No special survey of the locality is necessary, and no special appropriation is needed for carrying on any work which may be deemed necessary.

Very respectfully, your obedient servant,

A. MACKENZIE,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., November 11, 1892.

Respectfully forwarded to the office of the Chief of Engineers.
I concur in the views of the district engineer.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 84.

PATAPSCO RIVER AT BALTIMORE, MARYLAND.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the South Branch of the Patapsco River at Baltimore, Md.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Col. William P. Craighill, Corps of Engineers, dated October 7, 1892, of a preliminary examination of the South Branch of Patapsco River, at Baltimore, Md., from Craighill Channel to Light Street Bridge, and Middle Branch of Patapsco River from Light Street Bridge to foot of Eutaw Street, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Maj. Gen., Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 7, 1892, by Col. William P. Craighill, Corps of Engineers, concerning preliminary examination of South Branch of Patapsco River at Baltimore, Md., from Craighill Channel to Light Street Bridge, and Middle Branch of Patapsco River from Light Street Bridge to foot of Eutaw street, provided for by the river and harbor act approved July 13, 1892.

It is the opinion of Col. Craighill, concurred in by this office, that these localities are worthy of improvement by the General Government.

The local engineer states that no new survey is needed for the preparation of project and estimate of cost of improvement proposed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF SOUTH BRANCH OF PATAPSCO RIVER, FROM CRAIGHILL CHANNEL TO LIGHT STREET BRIDGE; AND OF MIDDLE BRANCH OF PATAPSCO RIVER, FROM LIGHT STREET BRIDGE TO FOOT OF EUTAW STREET, BALTIMORE, MARYLAND.

UNITED STATES ENGINEER OFFICE,
Baltimore, Md., October 7, 1892.

GENERAL: In obedience to your instructions I have the honor to make the following report concerning the South Branch of Patapsco River, at Baltimore, Md., from Craighill Channel to Light Street Bridge; and Middle Branch of Patapsco River, Md., from Light Street bridge to foot of Eutaw Street.

The growth of the city of Baltimore in the last fifteen or twenty years has caused such a development in the business of the section which is interested in those portions of the Patapsco River as to justify me in saying in the words of the law that they "are worthy of improvement by the General Government."

"The facts and reasons" on which this opinion is based are personal examination of the streams and their surroundings and conference with intelligent men engaged in business there.

The principal interests to be subserved by the improvement desired are those dependent on easy navigation for ships engaged in transporting coal, wood, ice, marble, and the materials for the manufacture of glass and fertilizers. The present commerce is hampered by the want of greater depth of water, and the indications are good that there would be a decided increase of business if the existing channels were improved.

No estimate is now submitted of the amount that will enable me to make "a survey and report including a project with estimate of the cost of the improvement proposed," as no further survey is needed. Existing maps are sufficient for the preparation of a project and estimate.

* * * * * * *

Very respectfully, your obedient servant,

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 85.

INLAND WATERWAY BETWEEN MISPILLION AND BROADKILN RIVERS, DELAWARE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination for inland waterway connecting the Mispillion and Broadkiln rivers, Delaware, so as to reopen the navigation of Cedar, Slaughter, and Primehook creeks.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from W. F. Smith, United States agent, major U. S. Army, retired, dated August 11, 1892, of a preliminary examination for inland waterway connecting the Mispillion and Broadkiln rivers, Delaware, so as to reopen the navigation of Cedar, Slaughter, and Primehook creeks, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated August 11, 1892, by W. F. Smith, United States agent, major of engineers, U. S. Army, retired, of the results of a preliminary examination for inland waterway connecting the Mispillion and Broadkiln rivers, Delaware, so as to reopen the navigation of Cedar, Slaughter, and Primehook creeks, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of the local engineer, concurred in by the Division Engineer and by this office, that this inland waterway is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION FOR INLAND WATERWAY CONNECTING THE MISPILLION AND BROADKILN RIVERS, DELAWARE, SO AS TO REOPEN THE NAVIGATION OF CEDAR, SLAUGHTER, AND PRIMEHOOK CREEKS.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., August 11, 1892.

GENERAL: In compliance with instructions contained in Department letter of July 14, 1892, and the requirements of section 7 of the river and harbor act of July 13, 1892, I have the honor to submit the following report upon the preliminary examination for inland waterway connecting the Mispillion and Broadkiln rivers, Delaware, so as to reopen the navigation of Cedar, Slaughter, and Primehook creeks, made under my direction by Mr. A. Stierle, assistant engineer.

In view of the facts and for the reasons given in the report of the assistant engineer, a copy of which accompanies this, the inland waterway connecting the Mispillion and Broadkiln rivers, Delaware, so as to reopen the navigation of Cedar, Slaughter, and Primehook creeks, taking into consideration the present and prospective demands of commerce, is, in my opinion, not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

WM. F. SMITH,
United States Agent.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.
(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., August 12, 1892.

Respectfully submitted to the Chief of Engineers.

I agree with the district engineer that this waterway is not worthy of improvement by the United States.

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

REPORT OF MR. A. STIERLE, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., August 8, 1892.

SIR: In compliance with your instructions I have the honor to submit the following report upon the preliminary examination for an inland waterway connecting the Mispillion and Broadkiln rivers, Delaware, so as to reopen the navigation of Cedar, Slaughter, and Primehook creeks.

The streams under consideration are situated in the northeast section of Sussex County, Del., and are tributaries of Delaware Bay, into which they flow in an easterly direction and generally parallel to each other. Their sources lie on the divide of the peninsula about 15 miles in a straight line from the bay shore.

The most southerly one is the Broadkiln, which is also the largest in volume, with

the town of Milton at the head of navigation about 11 miles above the mouth. About 3 miles north of the Broadkiln is Primehook Creek, once, it is said, a wide and deep stream, but now a stagnant pool of water, whose outlet has been entirely closed up by the action of the sea and drift sand in the bay. About 3 miles to the northward is Slaughter Creek, the smallest of these streams. Its former outlet is also closed.

Cedar Creek is about 4½ miles north of Slaughter Creek, its general course being more northeasterly than the others. It is a creek of great length, but small in width and depth, the natural outlet having also closed up about twenty years ago. A new outlet in the form of a large ditch was subsequently made into the Mispillion River, Cedar Creek thus becoming a tributary of the latter. This ditch, which is about 2 miles long, 25 feet wide on an average, and 5 feet deep at high water, was dug at the expense of the adjoining land owners about seventeen years ago, at a cost of about $3,000.

The Mispillion River, the most northerly of the group, is the second largest in size and the most important from a commercial point of view. Milford is at the head of navigation about 12 miles above the mouth.

Both the Broadkiln and Mispillion have been improved during the past twenty years by the General Government from the mouth up as far as the tide flows, giving to each a 6-foot low-water channel. The amount expended in these improvements was, respectively, $35,000 and $17,000. The mouths of both rivers are obstructed by bars having a depth of water of 1½ feet at low tide and an average rise of the tide of 4 feet, and are still unimproved, projects for improvement having been submitted for the Broadkiln in 1871 and for the Mispillion in 1891. There are prospects that the entrance at the mouth of the latter river will soon be opened, an appropriation of $12,000 having been recently made by Congress for its improvement. Notwithstanding the obstructions at the mouth the amount of commerce in both rivers is large, having reached during the past year 38,741 tons, valued at $324,000, in the Broadkiln, and 67,398 tons, valued at $1,051,450, in the Mispillion.

The present commerce in Cedar Creek is said to amount to about $100,000 per annum. Six sailing vessels trade in and out of this creek, carrying phosphate, lime, grain, wood, lumber, and canned fruit. These vessels go as far as Davis Landing, 4 miles above the junction of the canal with the Mispillion River, and, of course, have to use the mouth of this river to pass in or out of the bay.

It is stated that about thirty-five years ago small schooners trading to New York and drawing 6 feet of water, sailed in Slaughter Creek as far as Draper Landing, where the old brick granary is still standing.

Primehook Creek had about that time also an open navigation. The coast survey chart of the Delaware Bay, plotted from surveys made in 1842, shows open outlets for both creeks. All shipments of freight from and to the adjoining country are now made either by the way of the Broadkiln or Cedar Creek canal. An approximate of these shipments could not be ascertained.

It is the desire of the land owners and farmers in the vicinity of the five streams mentioned in the bill, and especially of those living near the creeks whose outlets have closed, to connect them together by a canal about 20 feet wide and 6 feet deep at low water. The most favorable route for the canal would be through the marshes, about three-quarters of a mile from and nearly parallel with the shore of the bay, the southern end to join the Broadkiln near Hazzard's Landing, 3 miles above the present mouth of this river, and the northern end to lead into the Mispillion along the line of Cedar Creek canal. The total length of this waterway would be about 12 miles, two of which are in the above canal, which needs deepening, and 5 miles along small ditches already dug that could be utilized.

* * * * * * *

The construction of such a canal would undoubtedly be of great benefit to the adjoining country in the matter of drainage, and in decreasing the cost of hauling to and from the present shipping points. It would also give a new stimulus to the raising of produce, now debarred, through want of navigation, from reaching the markets in time, and would eventually became a valuable feeder if extended southwardly to the inland waterway now in process of construction between Chincoteague Bay and Delaware Bay, whose outlet will be in deep water under the shelter of the Delaware Breakwater Harbor. But in view of the facts that neither the Mispillion nor the Broadkiln possess at present an unobstructed outlet for low-water navigation, and that the improvement would be an expensive one, taking into consideration all possible increase in the present and the prospective commerce, I do not think the reopening of navigation of Primehook, Slaughter, and Cedar creeks as worthy of improvement.

Very respectfully, your obedient servant.

A. STIERLE,
Assistant Engineer.

Gen. WILLIAM F. SMITH,
United States Agent.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 86.

ALAQUA BAYOU, FLORIDA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the bar at the mouth of Alaqua Bayou, Florida.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Capt. Philip M. Price, Corps of Engineers, dated September 16, 1892, of a preliminary examination of the bar at the mouth of Alaqua Bayou, Florida, at its entrance into Choctawhatchee Bay, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, dated September 16, 1892, by Capt. Philip M. Price, Corps of Engineers, of the results of a preliminary examination of the bar at the mouth of Alaqua Bayou, Florida, at its entrance into Choctawhatchee Bay, made to comply with provisions of the river and harbor act approved July 13, 1892.

Capt. Price reports that the locality is, in his opinion, not worthy of improvement at this time by the General Government, and his opinion is concurred in by the Division Engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF THE BAR AT THE MOUTH OF ALAQUA BAYOU, FLORIDA, AT ITS ENTRANCE INTO CHOCTAWHATCHEE BAY.

UNITED STATES ENGINEER OFFICE,
Montgomery, Ala., September 16, 1892.

GENERAL: In accordance with the provisions of the river and harbor act of July 13, 1892, and of the letter from your office of July 14, 1892, I have the honor to submit the following report of a preliminary examination of Alaqua Bayou, Florida.

The examination was made in August, 1892, by Assistant Engineer J. E. Turtle, whose report is forwarded herewith.

Alaqua Bayou is an indentation of the north shore of Choctawhatchee Bay, about 60 miles east of Pensacola.

Assistant Engineer Turtle reports that one sawmill is situated on Alaqua Creek, an affluent of the bayou, and another on the bayou itself. The product of these mills is transported to Pensacola in sailing schooners, and in barges towed by tugs. The depth of water on the bar at the mouth of the bayou varies from $3\frac{1}{2}$ to $4\frac{1}{2}$ feet, according to the tide. The barges are capable of being loaded to draw 5 feet, and consequently now only carry partial loads. The owners of the sawmills desire that the bar should be dredged to a depth sufficient to accommodate the barges when fully loaded. The commerce of the bayou consists entirely of the products of the sawmills, and of the supplies of provisions, etc., taken there for the employés of the mills. * * *

The improvement would only benefit the owners of the sawmills, and would not be likely to increase the commerce of that section of country to any appreciable extent.

In my opinion, Alaqua Bayou is not worthy of improvement at this time by the United States.

Very respectfully, your obedient servant,

PHILIP M. PRICE,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. C. B. Comstock, Corps of Engineers, Division Engineer, Southwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
SOUTHWEST DIVISION,
New York, September 21, 1892.

Respectfully forwarded to the Chief of Engineers.

I concur in the opinion of Captain Price that this bar is not worthy of improvement by the General Government.

C. B. COMSTOCK,
Colonel of Engineers,
Bvt. Brig. Gen., U. S. A.,
Division Engineer.

REPORT OF MR. J. E. TURTLE, ASSISTANT ENGINEER.

HOLMES POST-OFFICE, FLA., *September 7, 1892.*

CAPTAIN: In compliance with your instructions of July 16, 1892, I have made the preliminary examination of the bar at the mouth of Alaqua Bayou provided for by the river and harbor act of July 13, 1892, and have the honor to submit the following report thereon:

Alaqua Creek heads in the upper end of Walton County, flows in a southerly direction, and empties into the bayou of the same name about three-fourths of a mile above its mouth. Alaqua Bayou is about 1½ miles in length, having a width of from one-half to more than 1 mile. This bayou is deep except at the mouth, where a bar has formed. The creek is narrow and sluggish, and is used exclusively above the town of Portland, Fla., for logging purposes. Portland, a sawmill settlement, and the site of a sawmill which cuts, for about nine months in the year, from 12,000 to 15,000 feet, B. M., per day, is situated on Alaqua Creek, about 1 mile above the head of Alaqua Bayou. From Portland down the creek is used only for the transportation of this mill's product, which is carried in small schooners, from 20 to 30 tons burden, to Pensacola, Fla. Three-fourths of a mile from the mouth of Alaqua Bayou is the mill of L. H. Berry & Co. This is quite an extensive plant and cuts about 8,000,000 feet, B. M., per annum. The output of this mill also finds a market in Pensacola, Fla., to which it is carried in small schooners and large barges, the latter towed by tugs sent over from Pensacola.

Just at the mouth of this bayou a bar has formed on which during ordinary tides there is 4½ feet of water. During the winter tides, which are frequently lower than summer tides, the depth is often reduced to 3½ feet.

The barges which transport nearly all of this mill output are owned by parties in Pensacola, and are capable of loading down to 5 feet draft. Therefore, they are compelled to make the trip to Pensacola, a distance of about 60 miles, with partial loads, or wait for more favorable tides. No agricultural products whatever are shipped from this section. The incoming commerce is simply store supplies brought chiefly on the schooners returning for lumber, and is not sufficient to cause any delay at the bar.

In addition to the present plant, Berry & Co. are building an extensive dry-house. This class of lumber will also be carried on barges to Pensacola.

The bar at the mouth of Alaqua Bayou is composed of soft mud mixed with sand. I had no difficulty in forcing a rod of iron from 5 to 6 feet into the bar. The mouth of this bayou is exposed to westerly winds across Choctawhatchee Bay, the fetch being about 8 miles. The depth of water on this bar, I was informed, has not been perceptibly changed by those winds.

A dredged channel through a bar of this nature would have to be made wide to insure any lasting benefits, owing to the instability of the material, and here would have to be wide enough to admit of schooners beating out. * * *

The completion of such a channel would doubtless greatly facilitate the operations of the mill of Berry & Co., but it can not be said that there would be any increase in the product or shipment of lumber should the work be performed, neither does it appear that the work would have a public character, or that the interests of the United States or general commerce would be subserved by its completion. Therefore, in my opinion, the improvement of this bar should not be undertaken by the General Government.

Very respectfully submitted.

J. E. TURTLE,
Assistant Engineer.

Capt. PHILIP M. PRICE,
Corps of Engineers, U. S. A.

COMMERCIAL STATISTICS FOR ALAQUA BAYOU, FLORIDA.

Number of vessels *	536
Average tonnage	30
Value of outgoing cargoes	$165,000
Value of incoming tows and cargoes	102,000
	267,000

* Each trip of each vessel is counted a vessel, not actually 536 vessels. In addition to this there are two small tug boats employed towing logs. A trip meaning from here to Pensacola and back here.

The above statement was submitted by L. H. Berry & Co.

In the "Incoming tows and cargoes," amounting to $102,000, are included the logs consumed by this mill, as they come from the Choctawhatchee and thence to the Alaqua Bayou, but are not detained at the bar owing to shallow water.

Respectfully,

J. E. TURTLE.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 87.

ALLEGHENY RIVER, PENNSYLVANIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination for lock and dam at the most practical point for navigation on the Allegheny River, Pennsylvania, between the dam at Tarentum and Herr Island Dam.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Amos Stickney, Corps of Engineers, dated October 3, 1892, of a preliminary examination for lock and dam at the most practicable point for navigation on Allegheny River, Pennsylvania, between the dam at Tarentum and Herr Island Dam, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 3, 1892, by Maj. Amos Stickney, Corps of Engineers, of the results of a preliminary examination for lock and dam at the most practicable point for navigation on Allegheny River, Pennsylvania, between the dam at Tarentum and Herr Island Dam.

It is the opinion of Maj. Stickney, concurred in by the Division Engineer and by this office, that the Allegheny River within the limits mentioned is worthy of improvement by the General Government.

In the judgment of the local engineer, $2,000 will be required for the surveys necessary to the preparation of plan and project with estimate of cost of improvement proposed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION FOR LOCK AND DAM AT THE MOST PRACTICABLE POINT FOR NAVIGATION ON ALLEGHENY RIVER, BETWEEN THE DAM AT TARENTUM AND HERR ISLAND DAM, PENNSYLVANIA.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, October 3, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination for lock and dam at the most practicable point for navigation on Allegheny River between the dam at Tarentum and Herr Island Dam, Pennsylvania. The examination was made by my assistant, Lieut. Harry F. Hodges, Corps of Engineers, a copy of whose report is transmitted herewith.

From the phraseology of the act of Congress directing this examination to be made, it would seem that it was the expectation of Congress to continue the system of slack-water navigation on the Allegheny River from Herr Island to or above the town of Tarentum, Pa., and that for this purpose but two locks and dams would be required, one at or near Tarentum, and one intermediate at some point between the dam at Tarentum and Herr Island.

From investigation of the subject it would seem to be desirable to build two locks and dams between the points mentioned. The reason for this, as stated in the report of Lieut. Hodges, is that the difference in level of the contemplated pool of Herr Island Dam and the natural water surface at Tarentum is 22 feet, and if the Tarentum Dam is placed within 5 miles of that town it would be necessary to build a dam with a lift of 15 feet to carry a 6-foot channel from the Herr Island pool to the Tarentum Dam. It is thought that such a high dam would have considerable effect upon the flood levels of the river, that serious damage might result and that it would be judicious to overcome the difference in level by two dams between the Tarentum Dam and Herr Island Dam. This matter can be more intelligently discussed after a proper survey of the locality. Villages and factories on the banks of this part of the river form almost a continuous line, and the extension of the slack-water system of navigation from the mouth of the Allegheny to Tarentum would not only provide an outlet for the products of the numerous manufacturing establishments, but would make a commodious harbor.

I think there is no question about the worthiness of the improvement by the General Government. The survey necessary for determining plans and cost of works is estimated to cost $2,000.

Very respectfully, your obedient servant,

AMOS STICKNEY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., October 6, 1892.

Respectfully forwarded to the Office of the Chief of Engineers.

I concur in the opinion of the district engineer that the extension of the slack-water system of navigation from the mouth of Allegheny River to Tarentum is worthy of improvement by the General Government.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

REPORT OF LIEUTENANT HARRY F. HODGES, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, September 19, 1892.

SIR: I have the honor to make the following report of the preliminary examination for a lock and dam at the most practicable point for navigation on Allegheny River between the dam at Tarentum and Herr Island Dam. The examination was ordered by the river and harbor act of July 13, 1892.

The distance by the river from the town of Tarentum to the Herr Island Dam is 20.4 miles. Along this part the river is followed by the West Pennsylvania Railroad on the right bank and by the Allegheny Valley Railroad on the left bank. The villages and factories are so numerous as to form almost a continuous line along the stream.

Statistics of the commerce of the Allegheny River will be found in the Annual Report of the Chief of Engineers for 1890, p. 2195. These statistics are criticised by Col. Merrill, in whose report they are found, as being incomplete and not representing the full volume of trade. It is highly probable that all the more bulky supplies and products of the factories would be transported by water, were the river available at all times, and that the estimate of the river commerce referred to above would fall far short of the reality. The immense interests involved would seem to warrant any improvement by which the trade of Pittsburg and Allegheny City may be furthered.

Between Tarentum and the level of the Herr Island Dam pool, as it will be when the work is completed, the natural surface of the stream falls about 22 feet. This difference in level is probably not accurate, as it is taken from a reconnaissance which was made in 1828; but the data are sufficient for the present purpose.

A depth of 6 feet is assumed to be necessary for navigation. This depth will be assured by the proposed Herr Island Dam for a distance of about 4.3 miles to the foot of Six-Mile Rapids. At this place the required depth runs out; a second dam must therefore be placed here to pool the water in the stretch above. The wording of the act, taken in connection with that calling for the location of a dam at or near Tarentum, indicates that but one dam is contemplated to pool the water between Herr Island and the Tarentum Dam. To obtain the navigable depth at Tarentum will require raising the natural service there about 3 feet. There is, therefore, a lift of 25 feet above the Herr Island pool, which must be overcome by a dam at the foot of Six-Mile Rapids and one "at or near Tarentum."

The fall is not uniformly distributed over the length of the stream. It occurs chiefly at the points where islands obstruct the flow. The river is thus divided into reaches in which the slope is slight and which are separated by comparatively short rapids of much greater slope. The principal rapids, beginning at the Herr Island pool, are Six-Mile Rapids, Nine-Mile Rapids, rapids at the foot of Fourteen-Mile Island, Poketo Ripple, and Lockharts Ripple, near Creighton Station.

Calling the Herr Island Dam No. 1, the one at the foot of Six Mile Rapids becomes No. 2. If Dam No. 2 be required to pool the water to a point at or near Tarentum it must have a lift of about 15 feet. This would carry the navigable depth to a point near the foot of Poketo Ripple, 5 miles below Tarentum. Dam No. 3, at this point, with a lift of 10 feet, would give a depth of 6 feet over the head of Lockharts Ripple and into the nearly level reach opposite Tarentum. If Dam No. 2 were built of a height less than 15 feet the navigable depth would run out, not at Poketo Ripple, but at the foot of the rapids next below, viz, at Fourteen-Mile Island, 5 miles farther downstream and 10 miles below Tarentum. Since the stretch between Poketo and Fourteen-Mile Islands is nearly level, it would require but a slight lowering of the

crest of Dam No. 2, to force Dam No. 3 5 miles farther downstream, and to thus prevent it from being a dam "at or near Tarentum." To place Dam No. 3 where the act requires it, necessitates therefore a lift of 15 feet for Dam No. 2, if but two dams are used. The effect of such a lift upon the flood waters of the river would very probably cause serious damage to the surrounding country.

It would seem much safer to pool the water between the Tarentum Dam and the Herr Island Dam by two intermediate dams, rather than by one. The first of these falls, of course, at the foot of Six-Mile Rapids, where the Herr Island Pool runs out. Dam No. 2, at this place, should have a lift of 6 feet to give the navigable depth to the foot of Nine-Mile Rapids next above. It would be possible to overcome the fall at Nine-Mile Rapids and to pool the water to Fourteen-Mile Island by Dam No. 2, but to do this would require a lift of 12½ feet. It seems better to put Dam No. 3 at the foot of Nine-Mile Rapids rather than to place it farther upstream and to exaggerate the height of No. 2.

Dam No. 3, at the foot of Nine-Mile Rapids, will pool the water to the navigable depth as far as the foot of Lockharts Ripple, opposite Creighton Station. Dam No. 4, at the foot of Lockharts Ripple, will give the navigable depth beyond Tarentum with a reasonable lift.

If the establishment of slack water to Tarentum be undertaken, I would recommend that the locks and dams be located approximately as follows:

Dam No. 2, lift 6 feet at or near the station of Sharpsburg, below Six-Mile Rapids, and 4.3 miles above Herr Island Dam.

Dam No. 3, lift 10 feet, at or near Claremont Station, below Nine-Mile Rapids and 3.8 miles above No. 2.

Dam No. 4, lift 10 feet, at or near Creighton Station, below Lockharts Ripple, and 2 miles below Tarentum. This dam has been made the subject of a separate report on the location of a dam "at or near Tarentum."

These lifts and distances are based upon a simple reconnaissance, and are subject to the changes which a more accurate survey shall indicate as necessary.

As the locality seems worthy of improvement, I would further recommend that the line of levels run by Mr. J. W. Arras, assistant engineer, for 11 miles up the river, be extended to embrace all the localities mentioned as sites for dams; that an instrumental survey be made extending from Herr Island Dam to a point 6 miles above Tarentum; and that soundings and borings be made for a distance of one-half a mile below Six-Mile Rapids and Nine-Mile Rapids, to determine with accuracy the best site for the two intermediate dams.

The estimated cost of this work is $2,000.

Very respectfully, your obedient servant,

HARRY F. HODGES,
First Lieut., Corps of Engineers.

Maj. AMOS STICKNEY,
Corps of Engineers.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 88.

MISSISSIPPI RIVER, FROM MOUTH OF IOWA RIVER TO BURLINGTON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Mississippi River, Iowa side, from mouth of Iowa River to Burlington.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. A. Mackenzie, Corps of Engineers, dated November 7, 1892, of a preliminary examination of Mississippi River, Iowa side, from mouth of Iowa River to Burlington, to determine the best method of removing the bars and deepening the channel, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: The river and harbor act approved July 13, 1892, provided for a preliminary examination of Mississippi River, Iowa side, from mouth of Iowa River to Burlington, to determine the best method of removing the bars and deepening the channel.

Maj. A. Mackenzie, Corps of Engineers, the officer in charge of the improvement of the river from mouth of the Missouri to Minneapolis, in a report dated November 7, 1892, copy herewith, states that a

"method of removing the bars and deepening the channel of the Mississippi River" was adopted in 1878, and has been successfully followed since that time; that the section of the Mississippi River referred to is worthy of improvement, and that work under the approved method mentioned has been in progress there for many years, and surveys of portions of the section are being made continually in connection with such work of general improvement. No further survey is required, and no special appropriations are needed for this work, it being practicable to allot such amounts as are necessary from the existing general appropriation for improving Mississippi River from mouth of the Missouri River to Minneapolis.

These views are concurred in by the division engineer, and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF MISSISSIPPI RIVER, IOWA SIDE, FROM MOUTH OF IOWA RIVER TO BURLINGTON, TO DETERMINE THE BEST METHOD OF REMOVING THE BARS AND DEEPENING THE CHANNEL.

UNITED STATES ENGINEER OFFICE,
Rock Island, Ill., November 7, 1892.

GENERAL: The river and harbor act of July 13, 1892, provides for a preliminary examination of the "Mississippi River, Iowa side, from mouth of Iowa River to Burlington, to determine the best method of removing the bars and deepening the channel." This preliminary examination was assigned to me by letter dated Office Chief of Engineers, July 14, 1892.

A "method of removing the bars and deepening the channel of the Mississippi River" was adopted in 1878, and has been successfully followed since that time. It consists in the construction of brush and stone dams, in the bed of the river, and shore protections, having for their object the closing of secondary channels and the building up of new banks for the purpose of reducing the river to a width proportionate to the amount of water discharged; and the protecting of the heads of islands and other caving banks, so as to maintain proper channel boundaries and prevent, as far as possible, the formation of new obstructions in the channel of the river.

The improvement of the section of the Mississippi River referred to, under such approved method, has been in progress for many years, and surveys of portions of the section are being continually made in connection with such work of general improvement.

Some portions of the Mississippi River between the mouth of the Iowa River and Burlington are, in their natural condition, very wide, divided by islands into numerous channels, and contain many sand bars. At a few localities rocks are found. Improvements have been so far undertaken at points where the natural condition resulted in the formation of obstructions, as at Keithsburg, Benton Island, Rush and Otter islands, and above Burlington. At all these points most satisfactory results have been secured, and during the last low-water season no material difficulties were met with by the interests of navigation in

this section of the Mississippi River. Approved projects contemplate the construction of work at points named, and at other points where obstructions may be developed. Detailed examinations and close study of the river carried on through many years, and results secured by work already carried out, afford convincing proof that the method of removing bars and deepening now being followed is the correct one.

The section of the Mississippi River considered is worthy of improvement, but no survey is required beyond those constantly being made in connection with construction work. No special appropriations are needed for this work, it being practicable to allot such amounts as are necessary from the existing general appropriation for improving Mississippi River from mouth of the Missouri to Minneapolis.

Very respectfully, your obedient servant,

A. MACKENZIE,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., November 11, 1892.

Respectfully forwarded to the office of the Chief of Engineers.
I concur in the views of the district engineer.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 89.

WHALE CREEK, NEW JERSEY.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Whale Creek, New Jersey.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Capt. Thomas L. Casey, Corps of Engineers, dated October 4, 1892, of a preliminary examination of Whale Creek, New Jersey, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated October 4, 1892, from Capt. Thos. L. Casey, Corps of Engineers, of the results of a preliminary examination of Whale Creek, New Jersey, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Capt. Casey, concurred in by the Division Engineer and by this office, that the creek is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF WHALE CREEK, NEW JERSEY.

UNITED STATES ENGINEER OFFICE,
New York, October 4, 1892.

GENERAL: I have the honor to report as follows upon a preliminary examination of Whale Creek, New Jersey, as called for by the river and harbor act of July 13, 1892:

Whale Creek is in the town of Mattawan, Monmouth County, situated between Cheesequakes and Mattawan creeks, and draining about 1½ square miles. It is a tidal creek, typical of the New Jersey marsh land, narrow and winding, and would be insignificant but for the deposits of clay on the upland near its banks. The creek empties into Raritan Bay on the south shore, 1½ miles west of Keyport Harbor. It is 50 feet wide at its mouth, narrowing to 20 feet at the fixed highway bridge three-fourths of a mile above.

One-half mile above the mouth there are two brickyards, having a capacity of from 10,000,000 to 15,000,000 brick per annum, all shipped by way of this creek. It is here 30 feet wide and from 3 to 4 feet deep at mean low water. Throughout the lower 500 feet of the creek the width increases to 40 and 50 feet, while the depth decreases to a few inches. At the outlet in the bay it becomes bare at low water. Here there is a larger brickyard, having a capacity equal to that of the two others combined. The traffic is now confined to small schooners, sloops, and canal boats; 100 tons is the maximum cargo, and 3½ to 4 feet the extreme draft that can be carried out of the creek. The passage in and out of the mouth is dangerous, and is limited to the period of high water and to the extent of tidal flow, which averages 4.5 feet.

Aside from the brick shipped from the three yards mentioned, there is but little traffic on the creek. The surrounding region is devoted to garden-truck farming, for which some fertilizer is brought in by vessel, and a small amount of coal enters the creek for the brickyards and neighboring farmers. The nearest villages, Keyport and Mattawan, have waterways of their own. Any possible improvement of the creek would therefore increase the general freighting but little, since Keyport and Mattawan are distant but 1 and 2 miles, respectively, with better facilities for shipment than Whale Creek can ever possess.

If the mouth of the creek were opened and regulated it would be a convenience to the present brick and clay interests, would result in some reduction in freights, and no doubt stimulate business on the creek. There are two other brickyards less than a mile from the creek now shipping entirely by rail, which, with better facilities for navigating the creek, would probably make use of this method of shipment. Any large growth, however, could not be expected because of the competition from the brick and clay interests of Mattawan Creek, Keyport Harbor, and Cheesequakes Creek. Still the amount of brick now shipped is large for so small a waterway, and constitutes a considerable industry. Some statistics bearing on this have been collected by Mr. Wm. E. Kinkle, owning one of the yards on the creek, which I believe to be a fair statement, as follows:

	July 1, 1890, to July 1, 1891.	July 1, 1891, to July 1, 1892.
Brick shipped	29,000,000	19,000,000
Tonnage	145,000	95,000
Freight, at $1.25 per 1,000	$36,000	$23,500
Value	$142,000	$96,000
Manure, lumber, etc. (tonnage)	500 to 900	400 to 800
Entered the creek (value)	$3,900 to $6,500	$2,500 to $5,000

The people request a channel 4 feet deep at mean low water, connecting the creek with the corresponding depth in the bay. The examination showed that the tidal currents maintain that depth only where the width is 30 feet or less. The 4-foot curve in the bay is about 1,000 feet from the shore. The dredged channels into the bay, exposed to northeast storms, direct from the Atlantic and also from the northwest to some extent, have proved, when tried, as at Cheesequakes and Port Monmouth, to be failures. Extensive protecting works would be required to insure permanence. The condition of the creek seems to indicate that dikes could hardly be located in such a manner as to give the required scouring velocity without interfering with the free entrance to the tidal wave. At Cheesequakes the opening between dikes is 200 feet and the currents have failed to keep open the dredged channel, while beyond the dikes it has entirely disappeared.

An opening of possibly 40 feet between dikes is as much as would maintain the required depth in this creek. By building flaring wings at the outer end to make the entrance easier and less dangerous this width would be passable. The dikes could be built cheaply, except at the outer end, where some stone-filled crib or timber work would be required. * * *

Such an improvement should reduce the freight on brick by 20 cents per 1,000, resulting in an annual saving of over $5,000. * * *

The deepening of this creek being a matter for the benefit of very few interested parties, I am of the opinion that it is not worthy of improvement by the Government.

Respectfully submitted.

THOS. L. CASEY,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Henry L. Abbot, Corps of Engineers, Division Engineer, Northeast Division.)

[First indorsement.]

NORTHEAST DIVISION, ENGINEER OFFICE,
New York, October 8, 1892.

Respectfully forwarded to the Chief of Engineers, U. S. Army. For the reasons within stated I consider that Whale Creek, New Jersey, is not worthy of improvement by the General Government.

HENRY L. ABBOT,
Colonel of Engineers, Bvt. Brig. Gen., U. S. A.,
Engineer, Northeast Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 90.

ENTRANCE TO HARBOR OF SAN FRANCISCO, CAL.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, a report of the examination of the entrance to the Harbor of San Francisco, California, known as the Golden Gate.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Col. G. H. Mendell, Corps of Engineers, dated July 27, 1892, of a preliminary examination of the entrance to the harbor of San Francisco, Cal., known as Golden Gate, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of a report, dated July 27, 1892, by Col. G. H. Mendell, Corps of Engineers, on preliminary examination of entrance to harbor of San Francisco, Cal., known as Golden Gate, provided for by the river and harbor act approved July 13, 1892.

The entrance being now unexceptionable, it is the opinion of Col. Mendell, concurred in by this office, that it is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF ENTRANCE TO HARBOR OF SAN FRANCISCO, CALIFORNIA, KNOWN AS GOLDEN GATE.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., July 27, 1892.

GENERAL: In reply to the Department letter of the 14th instant assigning to me the preliminary examination ordered in the act of July 13, 1892, of "entrance to harbor of San Francisco, Cal., known as Golden Gate," I have to say that for the purposes of a preliminary examination the official chart is quite sufficient and much more full and valuable than any results that could be obtained in the field by expenditure of the allotted sum of $50.

Having made the necessary examination I have to report that the Golden Gate is the passage between Lime Point on the north and Fort Point on the south side of the entrance to this harbor, both of which are rocky headlands. The width of this passage is almost exactly one mile.

The channel way is $\frac{7}{8}$ of a mile in width. It is entirely free of every kind of obstruction and the depth is throughout more than sufficient for every purpose of navigation, being nowhere less than 9 fathoms and for nearly the whole width more than 20 fathoms and as much as 69 fathoms.

One could hardly wish for a better entrance and probably there is nowhere one more favorable.

It is not plain that any improvement is practicable or desirable.

The entrance being now unexceptionable, it must for its very goodness be rated as not a worthy subject for expenditure of public money, even in so small a sum as $50.

Very respectfully, your obedient servant,

G. H. MENDELL,
Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 91.

TWELVEMILE CREEK, CALIFORNIA.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Twelvemile Creek, California.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 7, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. W. H. H. Benyaurd, Corps of Engineers, dated October 10, 1892, of a preliminary examination of Navigable Slough (known as Twelvemile Creek) in the Bay of San Francisco, Cal., made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY.
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 10, 1892, by Lieut. Col. W. H. H. Benyaurd, Corps of Engineers, of the results of preliminary examination of Navigable Slough, (known as Twelvemile Creek) in the Bay of San Francisco, California, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Benyaurd, concurred in by this office, that the locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF NAVIGABLE SLOUGH (KNOWN AS TWELVEMILE CREEK), IN THE BAY OF SAN FRANCISCO, CALIFORNIA.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., October 10, 1892.

GENERAL: I have the honor to present the following report on the examination of "Navigable Slough, Bay of San Francisco," provided for in the river and harbor act of July 13 last, and assigned to my charge by Department letter of July 14.

The examination of the slough was made by First Lieut. Charles L. Potter, Corps of Engineers.

There are nineteen sloughs in the Bay of San Francisco, all of which are navigable by vessels of light draft at certain stages of tide. Each slough has a distinctive name. Not knowing to which one the provision of the bill was intended to apply, information was sought of Hon. Eugene F. Loud, M. C., representing the district in which the greater number of sloughs are located, and it was ascertained that the slough situated a short distance south of Point San Bruno, and distant 12 miles from the ferry landings at San Francisco, was the one intended. The slough is known as Twelvemile Creek. It is navigable at a high stage of tide for a distance of about 2 miles.

At low tide the slough is bare. In the bay beyond the mouth there is an extensive mud flat, the channel through which only gains a depth of 6 feet at mean low tide at a distance of about 1 mile. The navigable portion of the slough has a width of about 600 feet at its mouth, and about 200 feet at the upper limit. The bordering land is nearly all marsh covered with water at high tide. This land is owned by the San Francisco Land and Improvement Company, which contemplates making extensive improvements. There is no commerce upon the creek to be benefited. In my opinion Navigable Slough or Twelvemile Creek is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

W. H. H. BENYAURD,
Lieut. Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

O

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 92.

CHETCO RIVER, OREGON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Chetco River, Oregon.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report, with map, from Capt. Thomas W. Symons, Corps of Engineers, dated September 16, 1892, of a preliminary examination of Chetco River, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report of September 16, 1892, with map, by Capt. Thomas W. Symons, Corps of Engineers, of the results of preliminary examination of Chetco River, Oregon, made to comply with provisions of the river and harbor act approved July 13, 1892.

Capt. Symons is of opinion that the Chetco River is not worthy of improvement by the General Government, and his opinion is concurred in by the Division Engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF CHETCO RIVER, OREGON.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, September 16, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of "Chetco River, Oregon."

The Chetco is a small stream which enters the Pacific about 3 miles due north of the boundary between Oregon and California.

It has a total length of 30 to 35 miles and a drainage area of about 180 square miles.

The small cove or anchorage at the mouth of the river is locally known as Chetco Bay. This bay is protected on the north and broad open to the south, and is a good summer harbor.

The river has practically no tidal compartment, the total area affected by the tides being not more than 200 acres.

There is no outer bar at the river entrance. At the mouth of the river there is a dry gravel bar above ordinary high tides, about half a mile long and 200 or 300 feet wide, both ends of which abut upon high ground. Through this bar the stream breaks, the position of the entrance being variable. At present it is near the north end of the bar in prolongation of the direction of the river just above. Formerly the river turned to the south just inside of the bar, and broke through the southern end.

This former position of the channel is marked by a shallow slough closed at the outer end, which is used to receive saw logs. The entrance is usually fordable at low tide during the summer, and is sometimes altogether closed. At present it is about 6 feet deep at low tide, and about 100 feet wide.

The Pacific Coast Pilot has the following reference to the mouth of the Chetco River:

> The mouth of the Chetco River varies in width according to the volume of water; sometimes it is 60 yards wide, with a foot of water on the bar at low water. At other times it is closed altogether by the heavy gravel beach, which was the condition in which we found it in August, 1853.
>
> The river inside has a general width of 200 yards, and comes down between banks 120 feet high; behind the banks the hills rise to 600 or 700 feet in less than half a mile. The forests come down to the river banks in many places.

The average range of tide at the mouth of the river is about 5 feet.

The tide ranges up the river about $3\frac{1}{2}$ miles. Above the head of tide the river nearly runs dry in the summer, and is at all times but a small mountain stream, which becomes a torrent from the winter storms.

In the tidal portion of the river there is a general depth of water varying from 20 feet near the mouth to 6 feet near the head, but this is broken by two shoals, which are practically dry at low water when the tide is out.

There are probably not over 100 people living in the whole Chetco Valley. The country is very rough. The hills rise almost from the river's edge.

There is not much bottom land, but what there is is fertile. There is a small quantity of fruit, cattle, and sheep raised. There is in the country large quantities of timber—fir, spruce, myrtle, and tan oak. There is a sawmill at the mouth of the river. The town of Chetco consists of a sawmill and a saloon. Two miles to the southeast is Chetco post-office, where there is a store, the newspaper office of the Chetco Harbor Herald, half a dozen ranches, and a stage station.

The commerce of the region is almost inappreciable. The steamer

Emily, plying between San Francisco and Coos Bay, stops once or twice a month in Chetco Bay, outside of the river mouth, to leave supplies and take on the small quantities of butter and wool produced for export. Sheep and cattle are driven over the mountains to Crescent City.

Freight rates between San Francisco and Chetco Bay range from $5 to $9 per ton.

No attempts to navigate the Chetco River have ever been made as far as known.

It is said that schooners have entered the mouth of the river on two occasions.

In my opinion the Chetco River is unworthy of improvement by the General Government, on account of its insignificant character, the small number of people, and the unimportant interests involved, and the fact that practically there is no present and no immediately prospective commerce.

The examination of this river was made by Lieut. Francis R. Shunk, Corps of Engineers, whose report is herewith.

I also send herewith a sketch map compiled with some additions from the records of the United States Land Office, which shows the lower portion of Chetco River and Chetco Bay.

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., October 13, 1892.

Respectfully forwarded.

For reasons herein stated, Chetco River is regarded as not worthy of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

REPORT OF LIEUTENANT FRANCIS RAWN SHUNK, CORPS OF ENGINEERS.

PORTLAND, OREGON, *September 10, 1892.*

SIR: I have the honor to submit the following report of an examination of the Chetco River, Oregon, made by me in August, 1892:

I examined the river from its mouth upward for a distance of about 18 miles, and obtained what information I could from inhabitants of the adjacent country.

The Chetco River is a small stream 30 or 35 miles long. It rises in the Coast Range of mountains, and empties into Chetco Bay, a small indention of the Pacific coast. Its general course is west by south.

Chetco Bay is a good summer harbor. It is sheltered from the northwest winds, but is quite open to the south. There is deep water close to the shore, and sailing vessels can enter and leave with any wind. There is a 2-knot littoral current up the coast.

There is no outer bar. At the mouth of the river there is a dry gravel bar above ordinary high tides, about half a mile long and 200 or 300 feet wide, both ends of which abut upon high ground.

Through this bar the stream breaks, the position of the entrance being variable. At present it is near the north end of the bar, in prolongation of the direction of the river just above. Formerly the river turned to the south just inside of the bar and broke through the southern end. The former position of the channel is marked by a shallow slough, closed at the outer end, which is used to receive saw logs. The

entrance is usually fordable at low tide during the summer, and is sometimes altogether closed. At present it is about 6 feet deep at low tide and about 100 feet wide.

The range of tide at the mouth of the river is about 5 feet. The head of tide is about 3½ miles above the mouth. The width of the river just inside the bar is about 700 feet; at the head of tide it is about 200 feet. The total tidal area is about 200 acres. The banks of this portion are high, except just at the mouth on the south side, where Chetco town site is located.

This tidal portion is obstructed by two bars of coarse gravel and loose stones. One is a mile and a quarter above the mouth, the other a mile and three quarters. They cause riffles when the tide is out, over which a flat-bottomed skiff can scarcely pass. At the lower of these two bars a large portion of the river bed is exposed at low tide. The rise of the tide at the lower rapid is about 4 feet, at the upper about 3.

Between the mouth of the river and the first rapid there is plenty of deep water. Most of it is said to be 15 or 20 feet deep at low tide. In the second and third basins the usual depth is 6 to 8 feet. The tidal area is terminated by a rapid. There was formerly a third bar in the tidal portions between the second bar and the head of tide. It was washed away during the last high water and has not returned.

Above the head of tide there is very little water in the river during the summer months. There is in most places a wide bed of coarse gravel and loose stones, through which a small stream wanders, sometimes in one channel, sometimes in two. There are numerous shallows and rapids, and a canoe could not descend the river, although there are some deep pools and reaches. The low-water stream is from 50 to 200 feet wide.

About 18 miles above its mouth the river is obstructed by a sort of vein of bowlders, some of them as large as 500 tons. A few miles above this it assumes the character of a mountain torrent.

For about six months in the year the river fills its banks. It is then in some places 800 feet wide; in others contracted to 100. At such time the water level is not less than 4 feet above the usual summer stage. At the 4-foot stage the current averages 6 miles an hour over the last 15 miles of its course. After heavy rains the water rises to a 10-foot stage; and at such times great quantities of logs, trees, and débris are brought down. These floods usually last only a few days. During high water the opening through the bar at the river's mouth is much enlarged.

The bed of the river throughout is stony and gravelly, with some coarse sand.

The surrounding country is very rough; the hills rise from the river's edge. There is not much bottom land; what there is, is fertile. In some places fruit grows very well. Cattle and sheep are raised on the hills. There is plenty of timber—fir, spruce, myrtle, and tan oak. The latter is said to be of very fine quality. There is a sawmill at the mouth of the river, which prepares a small quantity of lumber for local consumption.

During the season salmon are caught and dried for home use; a great many are said to enter the river.

The population of the whole Chetco Valley is not more than one hundred. There are no settlements. The town site of Chetco is occupied only by the sawmill and a saloon. Within 2 miles are a store, a printing and newspaper office (whence the Chetco Harbor Herald is issued), half a dozen ranches, and a stage station. The store is Chetco post-office; the stage station is Ferry post-office.

Chetco town site is on the stage road which runs from Crescent City, Cal., along the coast as far north as the Siuslaw. It is 30 miles north of Crescent City, and 38 miles south of Gold Beach, at the mouth of the Rogue River. This road is mountainous and difficult.

A wagon road runs up the Chetco River for about 18 miles; above this there is a trail for a few miles farther, but it is seldom used.

The steamer *Emily* makes pretty regular trips up the coast from San Francisco. She stops once or twice a month in Chetco Bay, outside of the river mouth. Freight is carried to and fro in lighters.

The commerce of this region is almost inappreciable. Sheep and cattle are driven over the road to Crescent City. Small quantities of butter and wool are shipped to San Francisco by the *Emily*. Nothing else is exported. Miscellaneous merchandise is brought from San Francisco by the steamer. Freight rates between San Francisco and the Chetco are from $9 to $5 per ton, according to bulk.

No attempts to navigate the Chetco have ever been made. Mr. Van Pelt, who owns the sawmill and is interested in the townsite, says that he intends in the near future to run a small steamer up the river for about 15 miles during the winter months.

It is said that schooners have entered the mouth of the river on two occasions during exceptionally favorable states of the entrance.

The people of the vicinity think that the mouth of the river might be improved

so that coasting vessels could enter, and they are anxious to have an appropriation for that purpose.

I do not consider the Chetco River worthy of improvement. With respect to the river above the head of tide no amount of improvement would render it navigable during the summer, and in winter its present condition is such that a small steamer could probably ascend it for 15 or 18 miles, if there were any object in doing so. In any case, no improvement seems to be called for.

With respect to the river mouth, I think that, in view of the smallness of the tidal area and the present condition of the entrance, the creation and maintenance of a sufficient channel would be a work of considerable difficulty and expense, and no expenditure would be justified by present or probable commerce.

Very respectfully, your obedient servant,

FRANCIS RAWN SHUNK,
First Lieutenant of Engineers.

Capt. T. W. SYMONS,
Corps of Engineers.

SKETCH OF THE
CHETCO RIVER, OREGON

FROM ITS MOUTH TO THE FORKS.

To accompany Report of CAPT. T. W. SYMONS, Corps of Engineers
on Preliminary Examination
(Compiled from U.S. Land Office Plats)

SCALE
mile 1 3/4 1/2 1/4 0 1 mile

U. S. ENGINEER OFFICE
PORTLAND, OREGON

Sep. 1892

Examination authorized by River & Harb. Act of July 13. 1892

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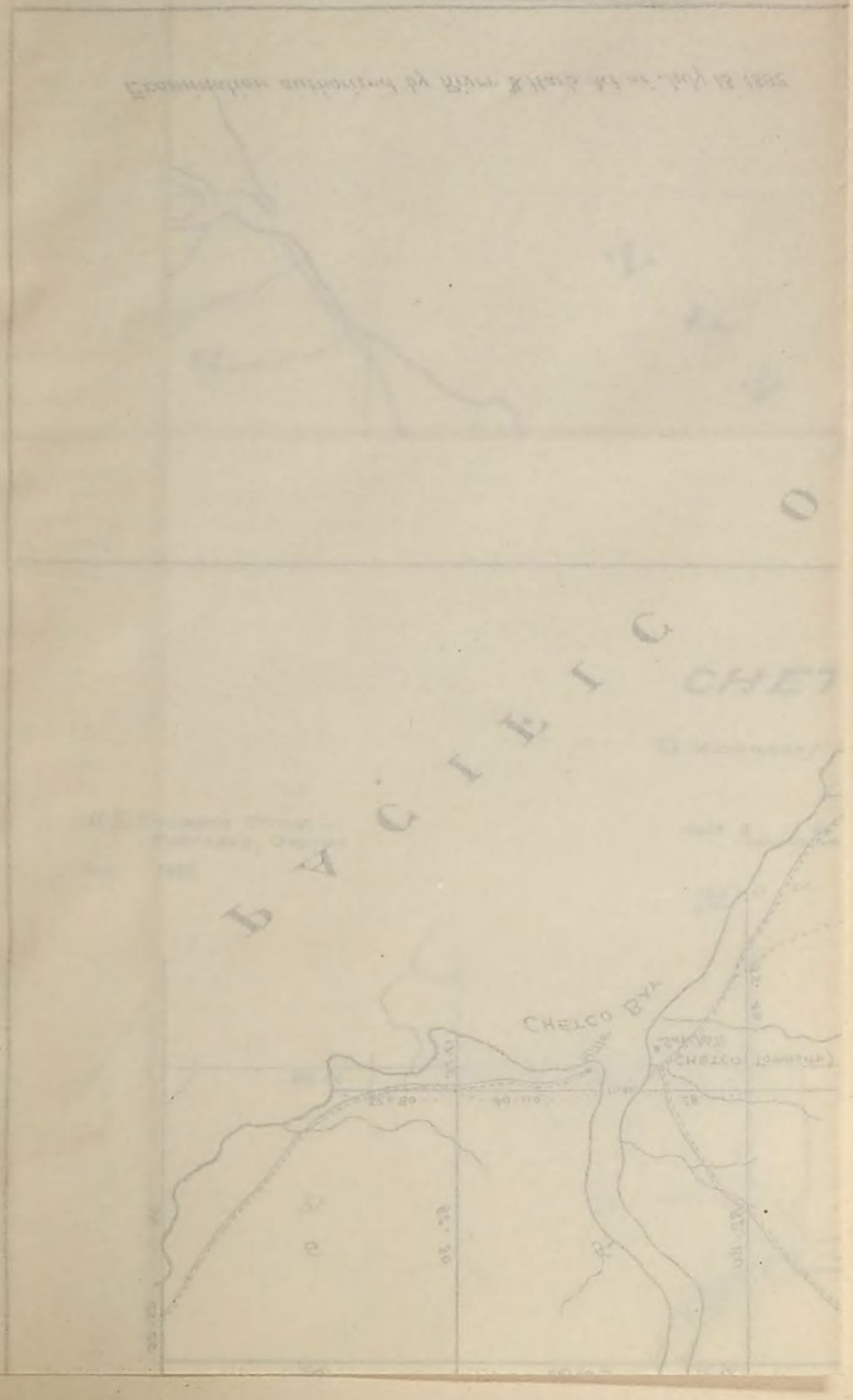

PACIFIC
CHELCO BAY

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 93.

KOOTENAI RIVER, IDAHO.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Kootenai River from Fry, Idaho, to international boundary line.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Capt. Thomas W. Symons, Corps of Engineers, dated October 12, 1892, of a preliminay examination of Kootenai River, from Fry, Idaho, to international boundary line, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 12, 1892, of Capt. Thomas W. Symons, Corps of Engineers, of the results of a preliminary examination of Kootenai River, from Fry, Idaho, to international boundary line, made to comply with provisions of the river and harbor act approved July 13, 1892.

Capt. Symons states that, in his opinion, the river is worthy of improvement by the General Government, and he submits an estimate of $400 as the cost of a survey of the river to determine accurately the

number of snags which should be removed. He remarks, however, that—

> As new snags are constantly coming in and some of the old ones are being carried away now and then, such a survey would not necessarily give a correct idea of the work necessary to be done at any time in the future.

The Division Engineer agrees with Capt. Symons that the river is worthy of improvement, and in this opinion I concur.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF KOOTENAI RIVER FROM FRY, IDAHO, TO INTERNATIONAL BOUNDARY LINE.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, October 12, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of the "Kootenai River from Fry, Idaho, to the international boundary line." In my opinion the Kootenai River, from Fry, Idaho, to the international boundary line, is worthy of improvement by the General Government.

DESCRIPTION.

The Kootenai River rises in British Columbia, in about latitude 51°, longitude 116°. It flows in a southerly direction into the State of Montana, crossing the international boundary line in longitude 115¼°. When the river reaches latitude 48° 20′ it makes a sharp bend to the westward and northwestward, running into the State of Idaho and again crossing the international boundary line, on its northward course, in longitude 116° 30′.

Just beyond the boundary line it empties into Kootenai Lake, a magnificent body of water about 70 miles long and 4 miles wide, and of very great depth. From the middle point of this lake an arm leads off to the westward, and the river leaves this arm and flows a distance of about 30 miles into the Columbia River. The Kootenai is the chief branch of the Columbia in this upper portion of its course. The portion of the river from its headwaters to its most southerly point in the State of Montana is ordinarily known as the Upper Kootenai, and a considerable portion of it is a navigable highway, traversed by steamers. From its most southerly point in the State of Montana to what is known as the town of Fry, or Bonners Ferry, in Idaho, the river is said to be unnavigable, being broken by many rapids and falls and flowing through a deep mountain cañon. From Bonners Ferry, or Fry, which places are identical, northwardly to the Kootenai Lake, the river is a stream exceptionally suited for the purposes of navigation, the water being deep and the current very slight. In this portion of its course, the river runs through a valley averaging about 4 miles in width, the bottom lands on each side, being of a very fertile character.

My examination was limited to that portion of the Kootenai River northwardly from Fry to the boundary line. At the town of Fry, which is practically the head of navigation on the Lower Kootenai, the

Great Northern Railroad, in its course from west to east, first reaches the river; here connection is made with steam boats for the fertile country along the river, both on the American and Canadian sides, and for the rich mining districts in the Kootenai and Slocan countries.

It is now practically certain, that the Slocan and Kootenai mining districts embrace some of the richest and most extensive deposits of mineral in the world, and their development will add to the importance of the watery highways of the Kootenai River and lake.

Besides Fry or Bonners Ferry, the principal towns on the river and lake are: Nelson, which is the shipping point for the Toad Mountain mines, and from which a railroad is built to the westward, connecting the navigable waters of the Kootenai Lake with the navigable waters of the Columbia River; Kaslo, which is the shipping point on the lake for the Slocan mines; Ainsworth, which is the shipping point for the Hot Spring mines, and Pilot Bay, at which point a large smelter is being erected for the reduction of ores, tributary to the lake. All these towns, except Fry, are in British Columbia.

The Kootenai River freezes up each winter about the first of January, and remains closed until the middle of March. The lake itself never freezes. There are, on the river and lake, a number of steamboats plying. Those of which I learned and saw were, first, the *Nelson*, of about 312 tons burden; the *Spokane*, of about 250 tons burden; the *Galena*, *Ainsworth*, *Idaho*, *Surprise*, and *Alton*, of smaller capacity than those first named.

The banks of this portion of the Kootenai are lined with large cottonwood trees, and the wash of the steamers and general river currents undermine the banks at different points and permit these large trees to slip into the river, where they in many instances form troublesome snags. Nothing ever having been done toward improving the river, the number of these snags now existent is very considerable.

The improvement needed for this river is the removal of the snags, which are troublesome and dangerous to the boats traversing it. To make a survey of the river and determine accurately the number of snags which should be removed, would involve an expense estimated at $400. As new snags are constantly coming in, and some of the old ones are being carried away now and then, such a survey would not necessarily give a correct idea of the work necessary to be done at any time in the future. * * *

The distance by river from Fry, Idaho, to the boundary line, is about 60 miles, and to Kootenai Lake, about 95 miles.

I have been unable to procure very accurate statistics of the business transacted on the river, but from such information as I was able to obtain from Mr. James Dolan, deputy collector of customs at Bonners Ferry, I estimate that the business for the past season has averaged about 400 tons of freight, and 450 passengers monthly.

There is every reason to believe that this will rapidly increase in the future.

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., October 17, 1892.

Respectfully forwarded.

For reasons herein given, the Kootenai Kiver from Fry, Idaho, to the boundary, is considered to be worthy of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers,
Division Engineer.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 94.

POCOMOKE RIVER, MARYLAND.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Pocomoke River, Maryland, with a view of uniting the waters of said river with the waters of Synepuxent Bay at a point above Snow Hill.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Wm. F. Smith, United States agent, major, U. S. Army, retired, dated August 16, 1892, of a preliminary examination of Pocomoke River, Maryland, with a view of uniting the waters of said river with the waters of Synepuxent Bay at a point above Snow Hill, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated August 16, 1892, by W. F. Smith, United States agent, major of Engineers, U. S. Army, retired, of the results of a preliminary examination of Pocomoke River, Maryland, with a view of uniting the waters of said river with the waters of Synepuxent Bay at a point above Snow Hill, made to comply with the provisions of the river and harbor act approved July 13, 1892.

It is the opinion of the local engineer, concurred in by the division engineer and by this office, that the route is worthy of improvement by the General Government.

It is estimated that the surveys necessary for preparation of plan and project with estimates of the improvement proposed can be made for $800.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF POCOMOKE RIVER, MARYLAND, WITH A VIEW OF UNITING THE WATERS OF SAID RIVER WITH THE WATERS OF SYNEPUXENT BAY AT A POINT ABOVE SNOW HILL.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., August 16, 1892.

GENERAL: In compliance with instructions contained in Department letter of July 14, 1892, and the requirements of section 7 of the river and harbor act of July 13, 1892, I have the honor to submit the following report upon the preliminary examination of Pocomoke River, Maryland, with a view of uniting the waters of said river with the waters of Synepuxent Bay at a point above Snow Hill, made under my direction by Mr. A. Stierle, assistant engineer, a copy of whose report accompanies this.

The connection between the Pocomoke River and Synepuxent Bay is deemed of the greatest importance to the commerce between the Chesapeake and Delaware bays, affording a thoroughly safe route between these bays without the danger of ocean navigation, and would greatly increase the intrinsic value of the inland waterway between Chincoteague Bay and Delaware Bay.

The route is well worthy of improvement and a survey is recommended. The least amount required to make a survey and report with project and estimate of cost of improvement is $800.

Very respectfully, your obedient servant,

WM. F. SMITH,
United States Agent.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.
(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., August 18, 1892.

Respectfully submitted to the Chief of Engineers.

Having in view the facts and reasons set forth in the report of the local engineer and the standard set by Congress in similar cases, I state, as required by the law, that this work is "worthy of improvement."

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

REPORT OF MR. A. STIERLE, ASSISTANT ENGINEER.

WILMINGTON, DEL., *August 13, 1892.*

SIR: In compliance with your instructions I have the honor to submit herewith a report upon the preliminary examination of Pocomoke River, Maryland, with the view of uniting the waters of said river with the waters of Synepuxent Bay at a point above Snow Hill.

It is understood from the promoters of the project that the idea of a connection between the waters named suggested itself and has been elaborated upon since the inland waterway between Chincoteague Bay, Virginia, and Delaware Bay has been commenced; the purposes of the improvement have therefore a wider scope than is indicated in the bill.

It appears also that Synepuxent Bay as an eastern terminus of the water connection is not, as first understood, the narrow bay generally shown on recent charts (especially on those of the Coast Survey Department) between Chincoteague Bay and Isle of Wight Bay, but includes, according to local traditions, the upper portion of Chincoteague Bay as far south as the Virginia State line. That always some uncertainty existed with regard to the exact line where Chincoteague Bay and Synepuxent Bay meet is shown by the fact that on older editions of the Coast Survey charts the sheet of water now generally known as Chincoteague Bay has two distinct names, the lower portion up to a line extended across from near Green Run Inlet, which is now closed, being Chincoteague Bay, and the portion north of it to Synepuxent Sound being Assateague Bay. (See chart of the Atlantic Coast from Cape Sable to Cape Hatteras, published in 1877.) The maps of Worcester County contained in an atlas of the State of Maryland, published many years ago, also gives Assateague Bay as the name of the upper portion, but the narrow strip of beach between the bay and the ocean is called Synepuxent Beach.

The characteristics of the bay shore on each side would indicate that immediately north of Green Run Inlet the bay was once divided by low marshy land through which narrows or thoroughfares flowed, which have gradually widened by the shore washing away. This may give a remote reason for the existence of separate names for the upper and lower portion of the bay. As the bill calls for the connection of Pocomoke River with Synepuxent Bay it became necessary to obtain all the information possible upon this point; in addition, the framers of the bill positively assert that the upper portion of Chincoteague Bay, locally known as Synepuxent Bay, was kept in view as the best outlet for the suggested water connection.

The Pocomoke River rises in the Great Cypress Swamp in the lower part of Sussex County, Del., and is about 60 miles long from its source to its entrance into Pocomoke Sound. Its course is southerly to Snow Hill, then southwesterly to the mouth, and generally parallel with the coast line, which lies about 16 miles to the eastward of it. The tide ascends the river for 33 miles to Porter Landing, where a slight daily rise and fall is still observable. At Snow Hill, which is only 5 miles below this landing and 28 miles above the mouth, the average rise and fall is about 2.6 feet.

This river has been improved by the General Government below Snow Hill. At the close of operations in 1888 a 7-foot low-water channel 80 feet wide was reported as completed to the town. There is no navigation above Snow Hill on account of the county bridge, which crosses here, having no draw. The depth in the channel for 2 miles above the bridge is fair, however, the least being 6 feet at low water, with occasional depths of 10 and 12 feet. Above tidal influence the bed of the river rises gradually, and is at many places bare during very dry seasons.

Chincoteague Bay is, through Chincoteague Inlet, connected with the ocean, and is from 4 to 5 miles wide. Its length from Killick Shoal light, near the inlet channel, to South Point, on Synepuxent Neck, is about 21 miles. It is connected on the north by the Straits of Synepuxent Bay, also called Synepuxent Sound, with Isle of Wight, Big and Little Assawoman bays, and by a canal, forming a section of the inland water way, with Indian River and Rehoboth bays, the head of the latter bay being about 60 miles north of Chincoteague Inlet. A water way, giving a 6-foot low-water navigation in these bays, is now in process of construction and will eventually be extended to Delaware Bay.

The Pocomoke River approaches the bay nearest at and immediately above Snow Hill, where the distance, in a straight line across the intervening land, is only 6 miles. There are, besides, other physical conditions which are unusually favorable for a water connection. About 1 mile above Snow Hill, where the depth of water in the river is still ample and the tide considerable, a deep branch, the outlet of Purnells Millpond, empties into the river. Three smaller branches run into the millpond as feeders from an easterly, southeasterly, and southerly direction, which are of about the same length. On the bay side opposite two small creeks, Scarboro Creek, the most northerly, and Pow Pow Creek, the most southerly, about 1 mile

apart, flow into Chincoteague Bay. From the head of these branches and creeks low ravines extend into the adjoining high land.

There are two lines which present themselves as the most feasible for a cut or canal from the Pocomoke River to the bay. The first is along the easterly branch of Purnells Millpond to its head for about 2½ miles; then across the divide about one mile; then down Scarboro Creek to the bay 3 miles, a total distance of about 6½ miles. The second follows the southeasterly or middle branch of the millpond to its head 3 miles; then across the high land about 1½ miles; then down Pow Pow Creek into the bay about 1¾ miles, a total distance of about 6¼ miles. The average elevation of the bottom of the branches and creeks may not be over 4 feet above the low-water level of Pocomoke River; that of the intervening high land may not be over 15 feet; the necessary excavations along either of the two routes can not be very large or deep. The Pow Pow Creek route apparently offers the best water and harbor in the bay, but the advantages and disadvantages of each line can not be stated until an actual survey is made.

It is not expected that in the immediate locality commerce would be much increased by the improvement asked for, if made. The improvement is not a local one, as the benefits derived from it would affect the general commerce of the whole lower Chesapeake Bay and the Atlantic coast from Cape Charles to Cape Henlopen, and also indirectly, the coastwise trade carried on by a large class of small vessels. It would form an important link and feeder of the inland water way between Chincoteague Bay and Delaware Bay, by drawing towards it a large amount of commerce from the westward which is now entirely cut off and which seeks an outlet by water, to northern markets in competition with Baltimore. It is impossible to estimate accurately what the amount of commerce would be passing through such a canal, if made, but it is safe to say that it would be not less than $5,000,000 per annum after the completion of the inland water-way. The connection of the waters of Pocomoke River and Synepuxent Bay, so called, is worthy of improvement, in my opinion, and a survey is needed to prepare plans and estimates, the cost of which will be $800.

Very respectfully, your obedient servant,

A. STIERLE,
Assistant Engineer.

Gen. WM. F. SMITH,
United States Agent.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 95.

MERCED RIVER, CALIFORNIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Merced River, California.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. W. H. Heuer, Corps of Engineers, dated September 3, 1892, of a preliminary examination of Merced River, California, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, of September 3, 1892, by Maj. W. H. Heuer, Corps of Engineers, of preliminary examination of Merced River, California, made to comply with provisions of the river and harbor act approved July 13, 1892.

I concur in the opinion expressed by Maj. Heuer and by the Division Engineer that the Merced River is not worthy of improvement by the General Government at this time.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF MERCED RIVER, CALIFORNIA.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., September 3, 1892.

GENERAL: In compliance with your instructions of July 14, 1892, and in accordance with the river and harbor act of July 13, 1892, requiring a preliminary examination of Merced River, California, I have the honor to submit the following report:

I personally examined this stream on August 28, 1892. It is a branch of the San Joaquin River, is situated in Merced County, Cal., heads in the Yosemite Valley and flows in a generally southwesterly direction for a length of about 60 miles and empties into the San Joaquin at Hills Ferry. Some 20 miles above its mouth, it is crossed by the southern Pacific Railway, the nearest station being called Livingston. Its low-water surface elevation near Livingston is stated to be 90 feet above mean low tide in Suisun Bay, California; during freshets the rise is as much as 13 feet, and between Livingston and its mouth the fall of the river is about 40 feet, making an average fall of nearly 2 feet to the mile.

Steamboats have been up this river for 20 miles and carried out grain and wood. The banks are of sand and adobe, generally from 9 to 13 feet in height, from 100 to 300 feet apart, and are densely timbered. The water surface of the river at its low-water stage where I forded it in two different places was about 50 feet wide, and at both crossings the river was 14 to 16 inches in depth.

The stream contains numerous snags caused from caving of timbered banks and is extremely crooked. The current at its low-water stage has a very moderate velocity, but, owing to the large number of snags and shallow water at low-water periods, it would be difficult to navigate the river even in a skiff. It is a stream which, owing to its rapid rise and fall, dependent on the melting of the snows in the spring, is one hazardous for steamboat navigation. In the year 1892 no steamboats entered the river; in 1891 one steamboat went up river about 12 miles above its mouth and brought out one bargeload of grain. In 1878 or 1879 one bargeload of grain was brought out of the river. The rates of freight on grain from the Merced River by boat to San Francisco are reported to be $2 per ton; by rail, the same freight is reported as $2.50 per ton.

During six months in the year, that is, during the high-water period of ordinary years, it is practicable for steamboats to reach the mouth of the Merced River at Hills Ferry. It is believed and reported to me that whenever there is water enough to reach Hills Ferry there is sufficient water in the Merced to navigate that river for a distance of 12 miles above its mouth. During the low-water periods it is impracticable to get to Hills Ferry, and hence equally impracticable to ascend the Merced. There are no villages on the Merced below the head of navigation. There are a few ranches, and the country is rich in grain, wood, and live stock.

The only improvement that could be made to the Merced is to remove some of the snags, * * * if the snag boat could get into the river, but she could only get into the river during the high-water stages, and then the snags would be difficult to find and would not be serious obstructions to navigation. With two railroads running very close to this river, there is no difficulty and very little complaint about getting products to market.

An improvement in the river by removal of snags would not re-

duce freight rates, induce competition, or cause boats to come up there with any more regularity than in the past; hence, I would consider the improvement of this river before the San Joaquin River below the mouth of the Merced was placed in good navigable condition as a waste of funds. At the present, considering the very limited amount of commerce using the river as a transportation route, I consider it unworthy of improvement.

Respectfully submitted.

W. H. HEUER,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., September 7, 1892.

Respectfully forwarded.

For reasons herein given, the Merced River is considered not to be worthy of improvement by the General Government at this time.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 96.

BAR AT ENTRANCE TO HARBOR AT YAQUINA BAY, OREGON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of harbor at Yaquina Bay, Oregon, with a view of obtaining 25 feet of water at mean low water upon the bar at the entrance.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report and map from Maj. W. H. Heuer, Corps of Engineers, dated November 3, 1892, of a preliminary examination of harbor at Yaquina Bay, Oregon, with a view to obtaining 25 feet of water at mean low water upon the bar at the entrance, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated November 3, 1892, with map, by Maj. W. H. Heuer, Corps of Engineers, upon preliminary examination of harbor at Yaquina Bay, Oregon, with a view to obtaining 25 feet of water at mean low water upon the bar at the entrance, made to comply with requirements of the river and harbor act approved July 13, 1892.

The entrance to Yaquina Bay has been under improvement by the United States for a number of years, with a view to obtaining a channel of a least depth at high water of 17 feet (low-water depth of 10 feet), and this report shows that at present, with the jetties in their incomplete condition, the low-water depth on the bar is 14 feet, and this least depth has been maintained. Hence the work has thus far accomplished all and even more than was expected.

In concluding his report Maj. Heuer states that while it may be practicable to obtain a depth of 25 feet at low water over the bar at the entrance at Yaquina Bay, the result is so doubtful and the expense attending the work being so great as to be incommensurate with the advantages to be derived, that he does not consider the harbor worthy of improvement to that extent.

For reasons given in his own report Col. G. H. Mendell, Corps of Engineers, the Division Engineer, states that the suggested improvement is not regarded as worthy to be undertaken by the General Government.

This opinion is concurred in by me.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HARBOR AT YAQUINA BAY, OREGON, WITH A VIEW TO OBTAINING TWENTY-FIVE FEET OF WATER AT MEAN LOW WATER UPON THE BAR AT THE ENTRANCE.

UNITED STATES ENGINEER OFFICE,
San Francisco, Cal., November 3, 1892.

GENERAL: The river and harbor act of July 13, 1892, required an examination of the "harbor at Yaquina, with a view to obtaining 25 feet of water at mean low water upon the bar at the entrance."

In accordance with the above act, and in compliance with your instructions, the examination was made by me in person in October, 1892, and the following report is the result thereof:

Yaquina Bay, Oregon, and the improvements made by the Government to the entrance are so well and carefully described by the Board of U. S. Engineers, printed in the annual report of the Chief of Engineers for 1889, part 4, page 2517 and following, that anyone desiring information as to the condition of affairs at that date has but to read that report. It will therefore only be referred to as occasion may demand.

The project for the improvement of the entrance to Yaquina Bay was made in 1881. The object was to concentrate the tidal flow of Yaquina Bay and direct it over the bar by means of a mid-tide jetty, a little less than 4,000 feet in length, to be constructed on the south side of the entrance to the bay. This was afterwards modified so as to construct two high jetties, one on each side of the entrance, the south jetty to be a little less than 4,000 feet long and the north jetty to be about 2,300 feet long. It was hoped that by this means a bar depth of 17 feet at high water (low-water depth of 10 feet) might be obtained and maintained.

Both jetties are completed as to length but not as to height; that on the south side requires some 1,300 feet of its outer end to be raised 4

or 5 feet in height; the north jetty requires about 630 linear feet of its outer end to be raised about 7 feet in height to complete the project as approved.

The total amount appropriated for the work has thus far been $635,000. Capt. T. W. Symons in his special report, printed in the Annual Report of the Chief of Engineers for 1890, part 4, page 2974, estimates that the total cost of completion of the projected work will be $370,560.30 additional (to what had been previously appropriated). Deducting appropriation of $165,000 made in 1890, and $85,000 made in 1892, there would still be required to complete the work $120,560. or make the whole estimated cost of the work $755,560.

Before work was commenced at Yaquina Bay there was frequently as little depth on the bar as 7 and 9 feet, with occasional temporary depths of 13 feet at mean low water. The mean rise and fall of the tide is 7 feet. The maximum rise of the tide is about 12 feet. At present, with the jetties in their incomplete condition, the low-water depth on the bar is 14 feet, and this least depth has been maintained. Hence the work has thus far accomplished all and even more than was expected.

When the project for improvement was made in 1881, it was well known that there was a large sunken reef of rocks located outside the bar, nearly parallel to and a little less than a mile distant from the shore. Also, that there were numerous sunken rocks lying just outside the entrance to the harbor. The jetties were designed so as to direct the outflowing tidal current over that portion of the bar which was least obstructed by rocks, which offered the best water, and which was the shortest and safest practicable route over the narrowest and ordinarily deepest part of the bar to the sea. The outer ends of the jetties were placed at a distance of 1,000 feet apart, for the reason that where the tidal flow was concentrated to this width inside the entrance good depths were maintained where scour was possible, and a lesser width would not have sufficed in the rapid current which would ensue for sea room for vessels entering and leaving the harbor. The entire tidal area within Yaquina Bay is said to be about 5 square miles, and the average tidal flow, as determined by Capt. Powell, is 40,000 cubic feet per second. The present cross-sectional area of waterway inside the jetties, referred to the plane of low water, is between 18,000 and 19,000 square feet, or say 22,000 square feet at half-tide stage. This would give a mean velocity of current of very nearly 2 feet per second, with maximum velocities perhaps as high as 8 feet, or about 5½ miles per hour. It is said that in the jetties at present there are currents as rapid as 10 feet per second or about 7 miles per hour. Hence further contraction in width of jetty channel would be inadmissable.

The maximum effect which the tidal currents directed by the jetties can produce on the bar has not yet been reached, for the reason that neither jetty has yet been raised to its full height, and as the crest of the bar is fully 3,000 feet beyond the present outer ends of the jetties the current is not concentrated on any special part of it.

Lying immediately in the throat of the jetties and extending out nearly to the bar, covered by a depth of 4 to 10 feet of sand, is a ledge of rock, whose top varies from 16 to 30 feet in depth below the plane of mean low water. This ledge or bed of rock, covering some 70 acres of area, was developed by careful borings made in 1885 and 1886. Before a channel carrying a low-water depth of 25 feet can be made, the rock within the channel must be removed, and this can not be done un-

til the sand which covers it has been removed by scouring action or otherwise.

The current within the jetties has not yet positively bared much of the rocky bed above referred to, and this may be attributed to the fact that neither jetty is yet built up its full height, and hence has not yet developed all the scouring power of which the current is capable, and partly to the fact that the scouring effect has not been of sufficiently long duration. Hence it would be unwise to extend the jetties further seaward until they were completed to their full heights and their effects observed. If at the end of a year after the completion of the jetties the currents shall fail to scour away from within the jetties the sand on top of the rocky ledge, it would be useless to extend the jetties seaward, and under such circumstances to obtain 25 feet depth at low water on the bar might be said to be impracticable. If, however, at the expiration of the time above referred to, the sand should be scoured away from the rocky bed within the jetties, then, and then only, could a proposition to extend the jetties further seaward be entertained.

* * * * * * *

The work thus far has cost about $600,000 and has resulted in giving an increased depth of water of about 4 feet on the bar. The work, while still incomplete, has more than accomplished the object sought, and it is possible that even better depths may be obtained on the completion of the work, for which it is believed the estimates are sufficient. There might be no serious difficulty in getting 25 feet low-water depths on the bar, if it remained in its present location, and through the jetties inside the bar, were it not for the underlying rock. Current action can be concentrated so as to scour sand and yet permit of safe navigation, but the rocks can only be advantageously removed by blasting, and as there will be violent wave action inside the jetties the water therein should be fully as deep as it is on the bar.

Deep water on a bar at the entrance to a harbor is always a desirable feature, but there should be some consistent relation for commercial purposes between the depth of water on a bar and that inside a harbor. Yaquina Bay owes its importance partly to its geographical location and partly because there happens to be a small harbor there and a railroad terminus. Inside Yaquina Bay are two very small towns, Newport and Yaquina. Newport is at the entrance and Yaquina, the railroad terminus, is 3 miles farther up the bay. Practically, all the commerce of Yaquina Bay is due to and must be carried over this railroad, some 130 miles in length. Coast Survey charts of 1868 and more recent surveys show that while there are depths of 25 to 30 feet in front of Yaquina there is no continuous channel greater than 17 feet at low water to Yaquina. Moreover, they show that the 18-foot channel, when it does exist, is in places less than 200 feet wide, and its average width is less than 300 feet. They also show that the total area of water within Yaquina Bay, having depths of 18 feet or more at low water, is only about 212 acres, or about one-third of 1 square mile.

The country within fifteen or twenty miles of Yaquina Bay is neither very populous nor rich in agricultural products. Its manufactures are limited to the railroad repair shop and a sawmill just above Yaquina. It is reported that, since the Oregon Pacific Railroad reached the Willamette Valley, grain rates from thence to market (San Francisco) have been reduced from about $6.50 to about $3.50 per ton, and it is estimated in a letter from the mayor of Corvallis, published in the annual report of the Chief of Engineers for 1884, page 2268, that the grain

available for export in six of the counties in Oregon for 1884 was 8,150,000 bushels, and that this grain, in consequence of the opening of the Yaquina route, was worth 8 cents per bushel more to the farmer than heretofore. The above figures show a saving to the farmer in one year of $652,000, but they show the value to the community of a competing railroad, not of Yaquina Bay as a shipping point, for the statistics of tonnage published in the succeeding annual report show the total tonnage of Yaquina Bay to have been only 8,234 tons, of which over 7,000 tons were railroad supplies, etc., and that of the balance only 100 tons of wheat (about 3,333 bushels) were outgoing. As there were three other railroads entering the Willamette Valley at that time, and it is believed carrying most of the products to tide water at Portland, it is natural to infer that the reduction of freight rates was made in consequence of the railroad competition rather than of any harbor improvements at Yaquina Bay.

During the past year the exports from Yaquina Bay are reported by Mr. W. M. Hoag to have been only 20,063 tons, while the amount raised in five counties in Oregon, available for export by seagoing vessels, was 217,496 tons. During the past year only one steamer plied between San Francisco and Yaquina Bay, making a round trip every ten days. There was no lack of water either on the bar or inside Yaquina Bay to prevent 217,496 tons being carried out had it been available, but vessels will not generally go to a harbor unless the trip is commercially profitable, and the Oregon Pacific Railroad Company holds the key to the situation as to whether or not it shall be commercially profitable for vessels to go to Yaquina Bay.

While it may be practicable to obtain a depth of 25 feet at low water over the bar at the entrance at Yaquina Bay * * * the result is so doubtful and the expense attending the work is so great as to be incommensurate with the advantages to be derived, and for this reason I do not consider the harbor worthy of improvement to this extent, or even beyond the approved project.

A statement of Mr. W. M. Hoag, for the receiver of the Oregon Pacific Railroad, giving reasons why the Yaquina Bay improvement should be continued to a 25-foot depth is herewith.

Respectfully submitted.

W. H. HEUER,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., November 11, 1892.

Respectfully forwarded to the Chief of Engineers, U. S. Army.

It is practicable to secure and maintain between jetties at Yaquina Bay a low-water depth of 25 feet and more.

If the bed of the entrance were alluvial the jetty channel might be deepened sufficiently by controlling the tidal currents. The bed of the entrance being of rock, the stated depth can not be obtained by tidal action, and only by blasting the channel and removing the débris at very great cost.

If the stated low-water depth of 25 feet were obtained in the channel over the distance controlled by jetties—extended to any reasonable

distance beyond their present termini—there would yet be found on the bar lying in front of the seaward ends of the jetties a less depth than 25 feet, and in our present state of knowledge no one could undertake with assurance of success, to create and maintain a low-water depth of 25 feet on the bar at Yaquina entrance.

For these reasons the improvement of Yaquina entrance, so as to give a depth of 25 feet on the bar at low water, is not regarded as worthy to be undertaken by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

MEMORANDUM OF MR. WM. M. HOAG, ON THE CLAIMS OF YAQUINA BAY TO FURTHER GOVERNMENT APPROPRIATIONS TO SECURE A DEPTH OF TWENTY-FIVE FEET AT LOW WATER.

CORVALLIS, OREGON, *October 19, 1892.*

1. The location of the port of Yaquina is the first element of importance. It is situated where the most direct ingress and egress is offered for shipping to the markets of the world; drawing to it the produce, both of the agricultural counties of Oregon and of her forests and mines. This is the condition of today, while the Oregon Pacific Railroad is yet in its infancy, and not yet connecting the port with the stock and sheep ranges of eastern Oregon and Idaho. No better situation can be suggested for the export of wheat, oats, flour, lumber, wool, and minerals. The following figures are quoted from the returns for the year 1891, as given by the U. S. Signal Service at Portland. The area of the Willamette Valley is divided between seven of the counties of Oregon, but the figures about to be given are for five only.

The tonnage so given is as follows:

	Tons.
Wheat	99,930
Oats	106,887
Barley	4,347
Corn	1,293
Wool	3,877

From the totals furnished by the Signal Service a deduction of one-fourth has been made on wheat, oats, barley, and corn for seed and home consumption.

These figures aggregate 217,496 tons; or, on another form, the cargoes of more than 100 vessels.

The importance of the port in question is not a matter of estimate, but has been demonstrated by the experience of the past five years.

The first effect of the opening of the Yaquina route to shipping was to force the other transportation companies to reduce their fares and freights, so that the cost of getting a ton of wheat to market from the heart of the Willamette Valley was reduced from $6.60, which had to be paid for taking it from Corvallis to Portland, a few years ago, to $3.50, which now takes the wheat—not to Portland—but to San Francisco, where there is an advantage to the farmer in the price of not less than 10 or 11 cents a bushel, on an average of years.

The reason of the advantage of San Francisco over Portland in the matter of freights is a radical and essential one. It depends not on the Columbia Bar, although that has been an aggravating circumstance, but on the position of the two cities. San Francisco stands on the bay, with a direct access to the ocean, while Portland, on the Willamette River, 120 miles or thereabouts from the ocean, has to maintain a costly system of pilotage and towage to bring the ships, of whatever tonnage, to her wharves. Therefore the two questions of time and expense are both answered in favor of San Francisco by the shipowner when selecting a port to which to send his ships.

No wonder, therefore, that there should be the generally constant difference in freights in favor of the southern port. But there is another element in this question to be now considered. San Francisco herself is an expensive port for the ships. There are harbor dues, wharfage, State dues, water privileges to pay for, and therefore the question presents itself if these are necessary incidents to the shipping of the exports of whatever kind that are destined for a foreign market.

Yaquina Bay stands at the one spot on the long stretch of coast between San Francisco and the Sound where easy, quick, and cheap approach from the ocean is combined with a safe and land-locked harbor, of ample size, and speedy access from

the interior country yielding the produce needing transport by deep sea-going vessels. When half an hour takes a ship from the ocean to the wharf, and the same time suffices to set the ship safely at sea again on her outward voyage, there can be no excuse for exactions by way of pilotage and towage. When only as much has to be paid to take the wheat from the warehouse in the Willamette Valley to the port where it pays only the same or a less rate than it does at San Francisco as would have to be paid to take it to Portland, where the higher freights prevail, it takes no argument to show where the wheat will go. Translate these words into figures and see what is the result.

Before Yaquina was connected by rail with the Willamette Valley, the charges were as follows: From Corvallis, a central point of the Willamette Valley, to Portland, $6.60, or 20 cents a bushel. At Portland the excess over the ocean freight from San Francisco to market was at least 10 cents a bushel more. After the Yaquina route was opened the charges were, from Corvallis to San Francisco, $3.50, or 10.6 cents a bushel, and the wheat gained the extra advantage of the saved 10 cents a bushel on ocean freight, so that the saving to the farmer was the full sum of 20 cents. Even this enormous advantage is only a part of the saving to the community; not only to wheat, but to all other exports it applies, and in no less degree to imports also.

During the year ending June 30, 1892, the Oregon Development Company, whose steamships sail between Yaquina and San Francisco, had but one steamship running, and this one ship carried between the ports in question during that time 26,739 tons. The proportion of imports and exports was 6,675 tons imports to 20,063 tons of export. Now apply the proportionate saving in transportation charges to the volume of business which is directly or indirectly affected by the introduction of this competing route and some idea will be gained of the magnitude of the questions involved.

Many of those who have studied this transportation question as it affects the whole communities of the Northwest maintain that, of the two improvements, that of Yaquina overshadows that at the mouth of the Columbia in intrinsic importance.

It may be suggested that the tonnage actually moved by the Yaquina route in the period mentioned is insignificant in volume compared with that passing to and from Portland. But in transportation matters the lower rates offered by a competing route will always be found to govern the situation, and especially where, as in the present case, the rates are based on shorter lines, easier grades, and reduced expense of handling cargo. That this is no vain contention is seen by the persistency with which the previously existing routes endeavored, first, to impede and obstruct the construction of the Oregon Pacific Railroad, and, afterwards, when the original tactics had failed, to induce the entrance of the new competing line into divers arrangements for dividing traffic and segregating districts.

This memorandum has proceeded thus far on the supposition that the Oregon Pacific Railroad had fulfilled its mission when it connected the Willamette Valley with the seaboard, but a glance at the map of Oregon will show the far wider scope of its projection. Fully one-half of the great State of Oregon, with its area of 96,000 miles, is without railroad connection with the world. The wide plains of eastern and southeastern Oregon are now devoted to the raising of countless flocks of sheep and herds of cattle; but the day of the cowboy and sheepherder is fast passing away.

Settlement and diversified farming have now demonstrated that the Oregon Desert of the early maps has no existence, save in the representations by which the present occupants of the widespread expanse of country in question sought to frighten off intending settlers and prospectors. The very heart and center of Oregon is crossed by the line of the Oregon Pacific. After passing the Willamette Valley in its center the line enters the great timber regions of the Cascade Mountains. This district occupies an area of about 100 miles in length by 50 miles in breadth. A civil engineer of eminence after careful examination of the district in question reports that in his judgment it will yield from 100,000 to 300,000 feet of lumber per acre, affording profitable occupation for the railroad for fifty years to come.

Before the eastern boundary of the State is reached the road passes through the entire length of the Harney Valley, only second in Oregon to the Willamette in point of both size and general fertility. Thence it traverses the Malheur Valley before reaching the crossing of the Snake River and entering the State of Idaho. Either at or near the State boundary there is an intended meeting place with other roads traversing the continent. When, to the considerations demonstrating the present importance of Yaquina, are added those arising from a direct connection with eastern transcontinental roads, with all the developments of through passenger and freight traffic, then the engineering problem is the only one left for determination before accepting as proved the propriety of entering on the work of providing such a channel as shall suffice for the ships of deepest draft coming to the Pacific Coast.

The essence and gist of what has been written may be summed up in a few words.

Yaquina is a safe and commodious harbor. It is connected already with the interior by the Oregon Pacific Railroad, which could there deliver grain for $2 per ton from the Willamette Valley, if only the channel were sufficiently deepened to enable the grain ships to come to and lie alongside the wharves. For this the proposed depth of 25 feet will amply suffice; to provide less would be to leave the work but half done.

At Albany and Corvallis the railroad takes in the traffic of the whole Willamette Valley, consisting of seven of the richest counties of Oregon. From five of those counties last year the products available for shipment by seagoing ships aggregated about 217,496 tons, or enough to load one hundred ships. To these large figures should be added the incoming traffic. On the analogy of the amount carried between Yaquina and San Francisco this last year the volume of incoming traffic may be safely estimated at one-fourth of the outgoing.

The saving to the farmer on wheat alone by the opening of the Yaquina route is not less than 20 cents a bushel.

The saving on other traffic has been proportionate.

The Oregon Pacific Railroad is yet in its infancy and incomplete. When complete, not only will an immense scope of country be opened to railroad facilities—now entirely unprovided for—but a connection will be effected with transcontinental traffic.

Western Oregon, the district directly tributary to Yaquina, is now the most populous part of the State outside the city of Portland, and, according to statistics supplied by the emigration board, and printed by the Oregonian newspaper in its New Year's number of 1891, received in 1890 one-half of the 68,500 immigrants who came into Oregon in that year.

The real and full benefit of the work already done by the United States Government at Yaquina can not be gained until deep-sea ships can freely come and go there. Until this is done the port is one of transshipment only, and the cost of the two extra handlings and of the maintenance of a line of steamships to conduct the transport to San Francisco ought, if possible, to be saved to the producer, when the ocean transport could and would be more cheaply and more expeditiously commenced from Yaquina direct.

The railroad company has already provided facilities at Yaquina in pilotage and towage and in wharfage, where the loading and unloading of ships can be cheaply and quickly carried on.

The immense outlay incurred by the Oregon Pacific Railroad Company has been made in full reliance on the wisdom and foresight of the General Government in carrying out to the full the project of improving this harbor. The contemplated completion of the Nicaragua Canal will add enormously to the claims of Yaquina as a port of direct shipment to foreign countries. No harbor is better situated than Yaquina to secure a full share of traffic with China and Japan. This is also in contemplation with those who have invested in this enterprise.

In presenting this matter for consideration it is suggested that it should not be taken as a financial scheme submitted to capitalists as an investment, but as an improvement for the public benefit, the effect of which will endure long after the present generation has passed away. The whole State of Oregon is but in its infancy. But the attractions offered to incomers are so great that it is no vain prophecy that the present population will double itself in the next ten years.

Although the Willamette Valley is the oldest settled portion of the State, yet not one-third of its productive area is now under cultivation.

But even if the further improvement of Yaquina were considered as a commercial enterprise it would not be a bad showing that an expenditure of $600,000 has returned $230,000 in incomings of the nature of income in the first ten years of its existence. This, however, is the actual fact here, for the duties on steel rails alone brought in by the Oregon Pacific Railroad Company have yielded that amount. Let it also be borne in mind that for want of the completion of the improvement all those rails had to be reshipped at San Francisco for delivery at Yaquina.

The facts herein submitted show conclusively, it is hoped, that the $600,000 already expended in this improvement bears but a small proportion to the commercial advantages already gained by the present generation of citizens of this State. It is freely admitted that to assure the vastly greater advantages dependent on obtaining a 25-foot channel to the ocean considerably larger expenditures are required.

But it is equally confidently submitted that the success already won is the best possible argument and inducement for the judicious outlay of whatever sum is needed to complete this great work.

WM. M. HOAG,
Manager for T. E. Hogg, Receiver O. P. R. R. & W. V. & C.

NEWPORT

NORTH HEAD

Bare at low water

Bare at low water

SOUTH BEACH

N. Range Beacon 04

S. Range Beacon 03

OUTER BAR

Bare at low water

ENTRANCE TO YAQUINA BAY
OREGON

Showing surveys & soundings made in June 21 to 28 1891
under direction of CAPT T. W. SYMONS, Corps of Engrs
by John R. Savage, Asst Engr

Soundings are expressed in feet and indicate the mean of the lower low waters. Mean rise of tide 7.1 ft.

San Francisco, Cal., Nov. 3, 1892.

Forwarded to Chief of Engineers, U.S.A., with report of this date.

W. H. Heuer
Major of Engineers.

The "borings" made in 1885 and 1886, are indicated thus (20)RK the central figures denote the depth reached below the plane of reference the substance reached by the abbreviations.

SCALE

1000 0 1000 2000 3000 4000 ft.

H Ex 96 522

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 97.

NESTUGGA RIVER, OREGON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Nestugga River as far as Woods, Oregon.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report, with map, from Capt. Thomas W. Symons, Corps of Engineers, dated October 10, 1892, of a preliminary examination of Nestugga River, as far as Woods, Oregon, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report of October 10, 1892, with map, from Capt. Thomas W. Symons, Corps of Engineers, of the results of preliminary examination of Nestugga River, as far as Woods, Oregon, made to comply with the provisions of the river and harbor act approved July 13, 1892.

Capt. Symons states that, in his opinion, the river is worthy of improvement by the General Government to the extent of removing the dangerous reef of rocks extending from the headland at the south of the harbor throat about 100 feet directly into the channel.

It is the opinion of the Division Engineer that the Nestugga River as far as Woods is not worthy of improvement by the General Government, and in this opinion I concur.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF NESTUGGA RIVER, OREGON, AS FAR AS WOODS.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, October 10, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of the "Nestugga River, Oregon, as far as Woods."

I inclose herewith a sketch map showing the Nestugga River and Bay, as far as Woods. This map is reduced from the Coast Survey Chart No. 660, with additional notes obtained by Mr. John R. Savage, assistant engineer, who made the preliminary examination, and whose report is herewith.

Nestugga River through Nestugga Bay enters the Pacific Ocean in latitude 45° 10′. The entrance is about 25 miles south of the entrance to Tillamook Bay, and about 72 miles south of the entrance to the Columbia. It drains the western slope of the Coast Range of mountains, has a total length of about 45 miles, and a drainage area of about 300 square miles. The tidal area of the bay and river is about 2 square miles. The country drained by the Nestugga River is essentially mountainous. It was once covered with magnificent forests, but the great fires which raged over this country about forty to fifty years ago destroyed a very large proportion of the timber.

The portion of the Nestugga River above the influence of tide is entirely unfit for purposes of navigation. The portion of the river from the vicinity of Woods to the mouth is tidal. This portion flows in a direction generally parallel with the shore of the Pacific Ocean, and is separated therefrom by a sand spit from 700 to 3,500 feet in width. This spit is almost entirely bare and composed of drifting sands, the sand dunes having an easy slope toward the ocean and an abrupt slope toward the river. Except where bordered by tide-flat lands, the eastern shores of the lower Nestugga River rise abruptly from the high-water line to a height of 100 feet or more. The Little Nestugga River empties into the Nestugga about 2 miles from the bar, and the stretch of water between the entrance and this junction is ordinarily known as Nestugga Bay.

Except for about 3 miles from its mouth, where the Little Nestugga is bordered by tide flats, it flows through a narrow valley, which is in places almost a gorge and which contains little or no agricultural land.

There are probably 5 or 6 square miles of land fit for agricultural purposes in the vicinity of the Little Nestugga. The area of agricultural land in the valley of the Nestugga River will amount in all to probably 20 square miles. The valley proper varies from one-half to 1 mile in width and is very flat to the foot of the hills. The soil is rich and admirably suited for the growth of vegetables and for dairy products.

Above Woods the Nestugga River deepens considerably, and for 3 miles above the town there is nowhere less than 6 feet depth at low water. The river is about 250 feet wide at Woods and gradually narrows to about 100 feet 3 miles above. There is not more than one-tenth of the bottom lands of the Nestugga Valley under cultivation.

There are about 240 people living on the Little Nestugga and tributaries and about 480 in Nestugga Valley and the Sand Lake country just north of and commercially tributary to it. This makes a total population of about 720 souls. This estimate is made from the knowledge of the number of voters, on a basis of four people to each voter.

Agriculture is practically the only pursuit of the people, except during the salmon run, when a good deal of their time is devoted to fishing. Hay and vegetables are the main products. Bee culture is followed quite largely and a very fine grade of honey is produced.

The country is also well suited for dairy produce and considerable butter is made. The fish taken are the various kinds of salmon and are used for food by the settlers, and are shipped to Portland via wagon to Sheridan and thence by rail. It is estimated that the amount shipped each year is about 75 tons.

Woods, the only town on the Nestugga River, is situated about 4½ or 5 miles from the bar and about 1 mile inland from the ocean beach. It has a population of about 75, and a post-office with a triweekly mail via Dolph and Sheridan, and it has two general stores and a drug store; also a small steam sawmill of about 10,000 feet B. M. capacity per day. This mill only cuts for home consumption.

THE BAR.

Mr. Savage reports that on the bar at the entrance of the Nestugga River there is at high water a depth of about 12 feet, and 5 or 6 feet at low water. The bar is close inshore and quite narrow, and at the time of his examination the line of the channel out to sea was just about at right angles to the general direction of the coast. He states that one thing that tends to make the depth on the bar pretty uniform is the fact that the bar channel is seldom divided, though there have been times when it was divided. There is a small headland which causes a sharp turn in the river just at its mouth and sends the current out at right angles to the shore.

The following reference to the bar at the entrance to the Nestugga bay and river is from the Pacific Coast Pilot, page 428:

> In 1883 there was reported to be a depth of 6 feet of water upon the bar at the entrance to the Nestugga, with a constant breaker, but a small schooner called the *Kate and Anna* had crossed it several times with that draft.
>
> In the summer of 1887 there was estimated to be 5 feet of water on the bar at the entrance, which is poor. The small steamer always touches the bar when entering or leaving. In July, 1889, the depth of water on the bar of the Nestugga is reported 3 feet at low tide and not over 9 feet on the large tides.

It is my opinion that the entrance to this bay and river from the ocean is unworthy of improvement by the General Government. The only improvement which could be at all effective would be the construction of jetties to confine the flow of the water across the bar.

On account of the very limited tidal area any very marked improvement could not be hoped for, while the cost of such an improvement would be incommensurate with the interests involved and the good to be accomplished.

There is a bad reef of rocks, nearly bare at low water, extending from the headland at the south of the harbor throat about 100 feet directly into the channel. This is not shown on the Coast Survey chart. As the river is very narrow at this point this reef makes a dangerous obstruction, especially to those unacquainted with the channel, as they would be very likely to steer directly upon these rocks. From this reef up to the cannery, shown upon the plot, a distance of about one-half mile, there is a depth at low water of from 6 to 8 feet, and probably more. It is to this point that the coasting vessels which enter the river go, and there they leave the supplies which they have for the Nestugga country and receive the products which are shipped out. Those destined for Woods and points farther up are then taken in small boats.

In the portion of the river between the cannery and Woods there is a general depth sufficient for all purposes of navigation, with the exception of the shoal places marked on the map, which generally have a depth of from 1 to 2 feet of water at low water. These shoal places are caused by the accumulation of sand, which is blown from the sand spit over into the river and bay, and under ordinary circumstances the currents in the river are insufficient to scour them out to the generally prevailing depth.

During the winter freshets it is understood that these shoal places are materially deepened, only to be reformed when the sand becomes dry and the westerly winds commence to blow the sand into the river. I scarcely believe that it is practicable to remove these shoals in such a way that they will not reform. To me it seems idle to remove them unless the movement of the blowing and drifting sand can be stopped. The only way that the continued navigation of the Nestugga River as far as Woods can be secured would be to thoroughly reclaim the sand spit that lies between it and the ocean and prevent the sand from being blown over into the river. This reclamation is a work of great magnitude, and one of which the success is very problematical. Experiments in this connection are being made at Coos Bay, but as yet the results are indefinite. In my opinion the Nestugga River, from the cannery up to Woods, is unworthy of improvement by the General Government, as it furnishes now fairly good facilities for navigation with small boats at the higher stages of the tide, and because the success of any system of improvement can not be assured, and because the interests involved are not sufficient to warrant any great expenditure for the improvement.

It would seem, however, that it is proper to improve the mouth of the river or bay by the removal of the dangerous rocks at the harbor throat, as previously mentioned, and it is my opinion that the Nestugga River is worthy of improvement by the General Government to this extent.

The commerce of the river is limited generally to about three or four steam schooners entering during the course of the year, and it is understood that considerable difficulty is experienced in getting any vessel to bring in freight on account of crossing the shoal and comparatively unknown bar. Such vessels as can enter usually carry from 30 to 50 tons of freight.

The chart of Nestugga (Nestuggah) Bay, issued by the Coast and Geodetic Survey, contains only data referring to the inner bay.

The people of the Nestugga are, as stated by Mr. Savage, desirous of having an accurate survey of the entrance and bar made.

To make the required survey on which to base plans and estimates for the removal of the rocks at the harbor throat, it is estimated, will cost $250.

* * * * * * *

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., October 14, 1892.

Respectfully forwarded.

For reasons herein given, Nestugga River, Oregon, as far as Woods, is not regarded as worthy of improvement by the General Government.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

REPORT OF MR. J. R. SAVAGE, ASSISTANT ENGINEER.

PORTLAND, OREGON, *September 12, 1892.*

CAPTAIN: In pursuance of the instructions contained in your letter of July 22, I left Portland July 27 to make an examination of the "Nestugga River, Oregon, as far as Woods," with a view to its improvement.

I went by the Portland and Willamette Valley Railroad to Sheridan, where I was compelled to hire a private conveyance, as there is no stage line running beyond the Grand Ronde Indian Reservation. From Sheridan to Dolph, where the road into the Nestugga forks, it is a distance of about 25 miles. From this latter point there are two toll roads leading into the Nestugga Valley, one following closely the course of the Little Nestugga for a distance of about 12 miles, and the other following the valley of Three Rivers, a tributary of the Nestugga River, and the valley of the latter to Woods, a distance in all of about 16 miles. These roads are considerably above the average of mountain roads, but still have at certain points very steep grades, and during the winter months must get in very bad shape and render the transportation of goods a very difficult matter.

Nearly all of the imports of the Nestugga Valley are brought in by this mountain road from Sheridan and Portland, as many of the settlers buy direct from Portland, and only patronize the few storekeepers in the vicinity for the minor necessities. There is also a road leading into this section from Tillamook, about 30 miles in length, but it is very little used except for local traffic, as there is a haul of about 45 miles from Tillamook to North Yamhill, the nearest railroad point. It is during the winter months, when the roads are bad, that goods are transported by water. But of late years not more than three or four steam schooners cross the bar at the mouth of the Nestugga during the course of a year, and even then considerable difficulty is experienced in getting any vessel to bring in freight on account of the danger of crossing a shoal and comparatively unknown bar. Such vessels as can enter usually carry from 30 to 50 tons of freight, and they do not go up above the cannery, about 1 mile inside of the bar, on account of the shoalness of the river, but the goods are unloaded on the wharf or onto scows or small boats and thus taken up to their destination, usually Woods, which is about 3½ or 4 miles above the cannery. The freight rates on such vessels are usually about $8 per ton, measured in bulk, on goods from Portland, while the freight on goods when hauled over the mountains from Sheridan costs usually about 1 cent per pound with an additional half cent for railroad freight if purchased in Portland.

During the salmon run, however, when there is a considerable export of fish over

the mountains, freight rates from Sheridan are usually one-quarter to one-half less than the above on account of the advantage of having a load each way. Freight over the mountains is charged entirely by weight. For about 3½ miles from its mouth the Nestugga River flows parallel to the shore of the ocean, and is separated therefrom by a sand spit about a half mile or less in width. This spit is almost entirely bare, the sand dunes having an easy slope toward the ocean and an abrupt one toward the river.

Except where bordered by tide-flat land, the eastern shores of the Lower Nestugga River rise abruptly from the high-water line to a height of 100 feet or more.

The Little Nestugga River empties into the Nestugga a little over 2 miles from the bar, and the stretch of water between the bar and this junction is sometimes known as Nestugga Bay. Except for about 3 miles from its mouth, where the Little Nestugga is bordered by tideflats, it flows through a narrow valley, at times almost precipitous, which contains little or no agricultural land. There are probably 5 or 6 square miles of land fit for agricultural purposes in the vicinity of the Little Nestugga.

The area of agricultural land in the valley of the Nestugga River will amount in all to probably 20 sections of land. The valley proper varies from one-half to 1 mile in width and is very flat to the foot of the hills. The soil is very rich and admirably suited for the growth of vegetables and for dairy products. The flat land adjoining or bordering on the river is about 5 or 6 feet above mean high water, but it is usually overflowed to the depth of about 2 feet during certain portions of the winter months.

Above Woods the Nestugga River deepens considerably, probably owing to the fact that there is no sand above that point, and for 3 miles above the town there is nowhere less than 6 feet at low water.

The river is about 250 feet wide at Woods, and gradually narrows to about 100 feet 3 miles above. It holds this width for some distance farther, but shoals considerably and is more or less filled with gravel bars with about 2 feet of water on them at low tide. The head of tide is from 4½ to 5 miles above Woods, and above this point the river is full of riffles and gravel bars, and soon merges into a regular mountain stream. Not more than one-tenth of the bottom land of the Nestugga Valley is under cultivation.

As far as commercial interests are concerned, the country around Sand Lake 5 or 6 miles north of Woods, is tributary to the Nestugga, for the only outlet of that section is by way of the Nestugga River. The Sand Lake country contains about 6 square miles of agricultural land, but it does not compare with the Nestugga Valley in fertility, etc.

There is a small amount of fairly good timber on all these river bottoms, but on the hills and throughout all of the upper valleys there is nothing but burnt timber, as the Nestugga about forms the northern boundary of the large district that was burnt over about fifty years ago.

There are about 240 people living on the Little Nestugga and tributaries, and about twice as many in the Nestugga Valley and Sand Lake country combined, making a total population tributary to the Nestugga River of about 720. This estimate is made from a knowledge of the number of voters, on the basis of four persons to each voter.

Agriculture is practically the only pursuit of these people, except during the salmon run, when a good deal of their time is devoted to fishing. Hay and vegetables are the main products, but bee-culture is followed quite largely and a very fine grade of honey produced.

The country is also well suited for dairy products and there is considerable butter made. There are some fine ranges in this vicinity for sheep and cattle, but they are not very much utilized. There is a cannery about 1 mile above the bar, but it has not been run during the last three years. While running, however, the cannery had an average output of about 6,000 cases per year, but its capacity was considerably larger, in fact, close on to 1,000 cases per day, but the cannery was on too large a scale for the place, and that is probably the main reason why it did not pay.

In May, 1892, there was a creamery started on the Nestugga River about 2 miles above Woods, by local parties, but it did not prove a financial success, as it cost too much to gather the milk, as the steamer used drew 26 inches, which was too much water for it to run at all stages of the tides.

The salmon run, as in all other places, consists of the various kinds of fish, as chinook, silverside, steelhead, dog salmon, etc. The fish are used for food by the settlers and are usually shipped to Portland as well. In the course of a year there is, as nearly as can be estimated, about 75 tons of salmon shipped to Portland markets via Sheridan and the Portland and Willamette Valley Railroad, more or less depending on the state of the market.

Woods, the only town on the Nestugga River, is situated about 4½ or 5 miles from the bar and about 1 mile inland from the ocean beach. It has a population of about

75, and has a post-office, with a triweekly mail via Dolph and Sheridan. It has two general stores, a drug store, and a steam sawmill with a capacity of about 10,000 feet B. M. per day. This mill only cuts for home consumption, so the cut usually runs from 500,000 to 600,000 feet per year. The logs for this mill come from up the Nestugga and its smaller namesake, and they are floated up or down the river on the tides to the mill.

On the bar at the entrance to the Nestugga River there is at high water a depth of about 12 feet, or about 5 or 6 feet at low water. The bar is close inshore and quite narrow, and at the time of this examination the line of the channel out to sea was just about at right angles to the general direction of the coast. One thing that tends to make the depth on the bar pretty uniform is the fact that the bar channel is seldom divided, though there have been times when there were two channels, but this condition of affairs did not last long. There is a small headland which causes a sharp turn in the river just at its mouth and sends the current out about at right angles to the shore.

There is a bad reef of rocks nearly bare at low water extending from the above headland into the river a distance of about 100 feet. As the river is very narrow at this point this reef makes a very dangerous obstruction, especially to those unacquainted with the channel, as they would very likely steer into and right upon these rocks. From this reef up to the cannery, a distance of about half a mile, there is a depth at low water of 6 or 8 feet or more. Opposite the cannery the first serious obstruction to the inner navigation of the Nestugga is met with in the shape of a sand bar extending diagonally across the river, on which there is about 2 feet at low water. At this point the river has a width at low water of about 750 feet, with a large stretch of sand and mud, bare at low water, extending to the high-water line on the west, which is about 1,200 feet distant.

After crossing this bar there is a fair depth of water, about 5 or more feet at low water, to the point where the Little Nestugga empties into the Nestugga, which point is just about 2 miles from the bar. Just above the junction of these two rivers there is a large sandbar in which there is a depth of about 1 foot at low water at its shoalest point. This bar extends up the Nestugga for about 500 feet, and all the way across the river, but at its upper end the depth gradually increases to about 6 or 8 feet at low water. This depth extends for about a quarter of a mile or more and then another shoal or bar, probably caused by a tree lodged in the middle of the river, is met with, and on this there is also about 1 foot at low water. This bar only extends for a short distance and above it the prevailing depths are 3 and 4 feet for a distance of about 3,000 feet. Then Melanys Bar, on which there is about 2 or $2\frac{1}{2}$ feet at low water, has to be crossed, but beyond it there is a good depth of from 5 to 7 feet at low water all the way to Woods, a little over a mile, with the exception of one other shoal in the straight reach of the river, on which there is a depth of about 2 feet at low water for about 500 feet. Beyond Woods the river has a good depth for a stream of its size, as it is not clogged up by the sand blown and carried into the river, as is the case nearer the mouth. During any heavy windstorm the sand is blown over into the bay in great quantities, and the sand dunes are often cut down very noticeably. Most of the settlers that I saw were of the opinion that these sand clouds, caused by the heavy winds, were the main cause of the shoalness of the river, and I am satisfied that their ideas are about correct. During heavy freshets the bars or shoals in the Nestugga below Woods are usually swept away and cleaned out, but gradually form again as the river goes down. There are several snags in or near the middle of the river above the Little Nestugga, and these probably help to cause bars too.

Some of the small coasting steamers that come into the river have been up as far as Woods, but they can only go on the top of high water, and in this way considerable time is lost, as the masters of these vessels are pretty independent about coming here anyway; they have refused of late to go in any case and leave all freight at the cannery. The shipmasters claim that the rate of insurance for crossing an unsurveyed bar like that at Nestugga is practically prohibitive, and to do away with this claim the Nestugga settlers are desirous of having a reliable survey made of the bar, as they claim that freight rates will be reduced on this account. But I can't see that there is very much in this idea, as the shoalness of the bar and the danger resulting from that fact must necessarily make the rate of insurance very high; but I think it would be well if a survey of the bar could be made, not only on account of the value of the results for reference, but also because I think it possible that the insurance rates might be reduced somewhat if the board of underwriters knew the prevailing depths on the bar.

Some of the settlers advocated the removal of the numerous snags in the river, and one or two wished to use trees to form rough training walls for the improvement of the channel; but while such operations might be beneficial for a time, I think it is safe to say that no permanent improvement can be effected until the sand spit can be reclaimed and the sands prevented from blowing into the bay, for under the pres-

ent conditions, I am satisfied that the river has too much sand blown into it to take care of, and bars or shoals will of necessity form.

The establishment of ranges for the use of vessels crossing the bar was also spoken of, but I doubt if they would be of much utility as the captains could not be sure they were reliable, and would in any case go by their own judgment. The advisability of having a buoy outside the bar to locate the entrance was also urged, and it is in my opinion a matter well worthy of consideration.

At the mouth of the Nestugga River, as determined by the U. S. Coast and Geodetic Survey, the mean rise of tide is 7 feet. At Woods the mean rise of tide is about 5 or 5.5 feet.

From its mouth to the mouth of the Little Nestugga the Nestugga River has an average width between high-water lines of about 1,500 feet. Above this junction for about a mile this same width will run from 500 to 700 feet, and thence to Woods it is about 300 or 400 feet on the average. From Woods to the mouth of the Little Nestugga the width at low water will average from 250 to 300 feet, and below this junction it will run about 500 feet.

During the freshets which usually occur in November or December, the Nestugga generally rises several feet and runs with a very swift current, nearly 4 or 5 miles per hour. At such times the town of Woods is partially overflowed, and also nearly the whole of the adjacent flat country, over which the river water flows with considerable velocity.

As nearly as I could ascertain, the first vessel to enter the Nestugga since white settlers came into the country was a small sloop of 10 or 15 tons, but she was wrecked just inside the reefs of rocks near the entrance while attempting to go out with only one man on board. This was about 1882. The steam schooners *Kate and Anne* and *A. B. Fields* came in not long after in regard to establishing the cannery. The *Polar Bear*, *Rosie Olsen*, *Louis Olsen*, the sailing scow *Ocean Wave*, the steamer and sail scow *Ocean Queen*, the *Augusta*, and the *W. H. Harrison* are among the vessels which have entered the river.

In conclusion I would state that the only thing in the way of improvement that would be beneficial to the Nestugga River would, in my opinion, be the reclaiming of the sand spit by planting grasses, etc.

I think a survey of the bar is desirable, but not especially urgent. * * *

Very respectfully, your obedient servant,

J. R. SAVAGE.

Capt. T. W. SYMONS,
Corps of Engineers, U. S. A.

SKETCH

OF THE

NESTUCCA RIVER, ORE.

FROM ITS MOUTH TO WOODS

PRELIMINARY EXAMINATION MADE UNDER DIRECTION OF

Capt. T. W. Symons, Corps of Engineers

BY

John R. Savage, Asst. Engr.

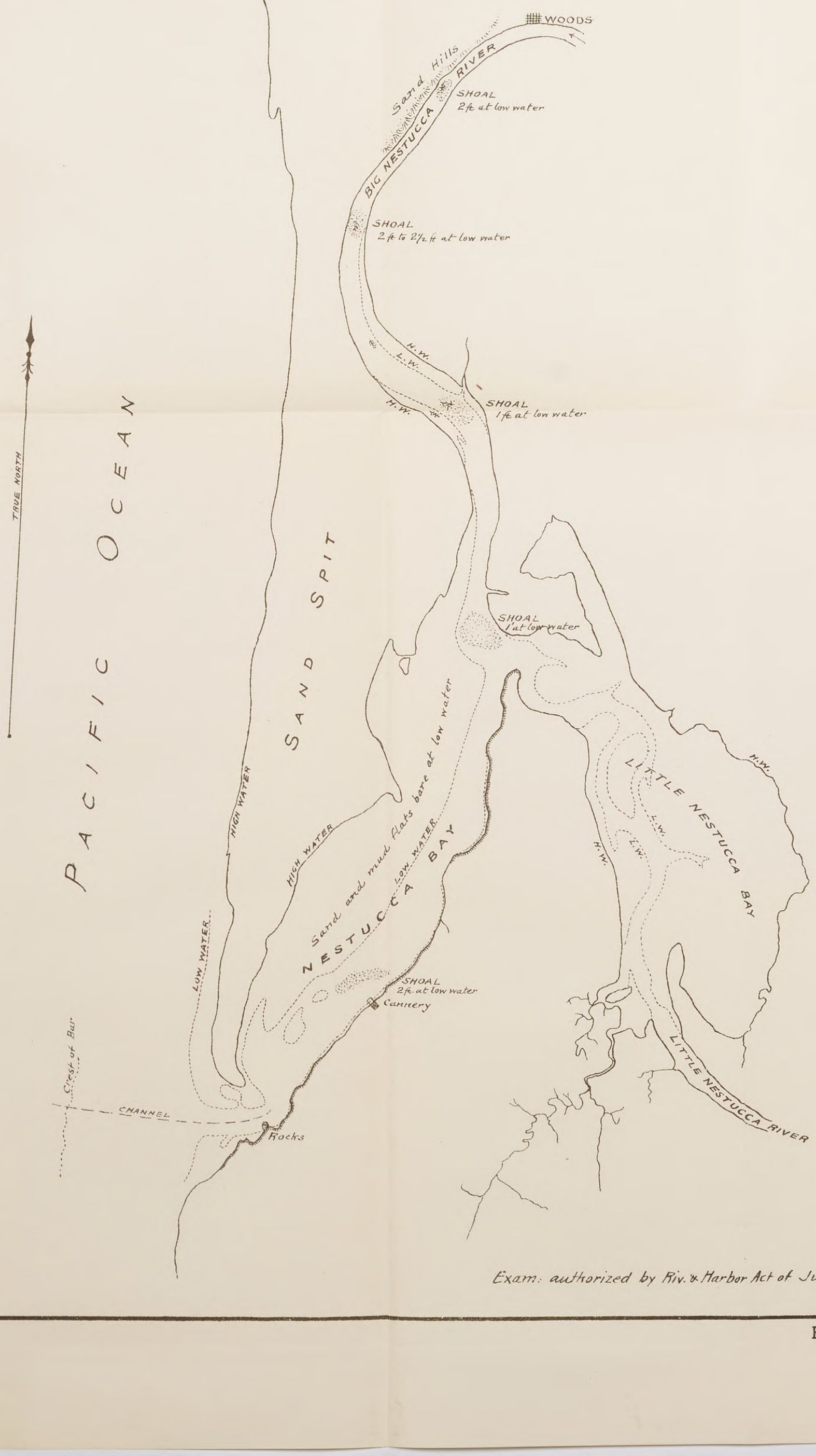
JULY. 1892

SCALE 1/25000

ft 1000 500 0 1000 2000 3000 4000 5000 ft

Soundings at Shoals indicate governing depth at low water.

(Map compiled from U.S.C.&G. Survey Chart)



Exam: authorized by Riv. & Harbor Act of July 13. 1892

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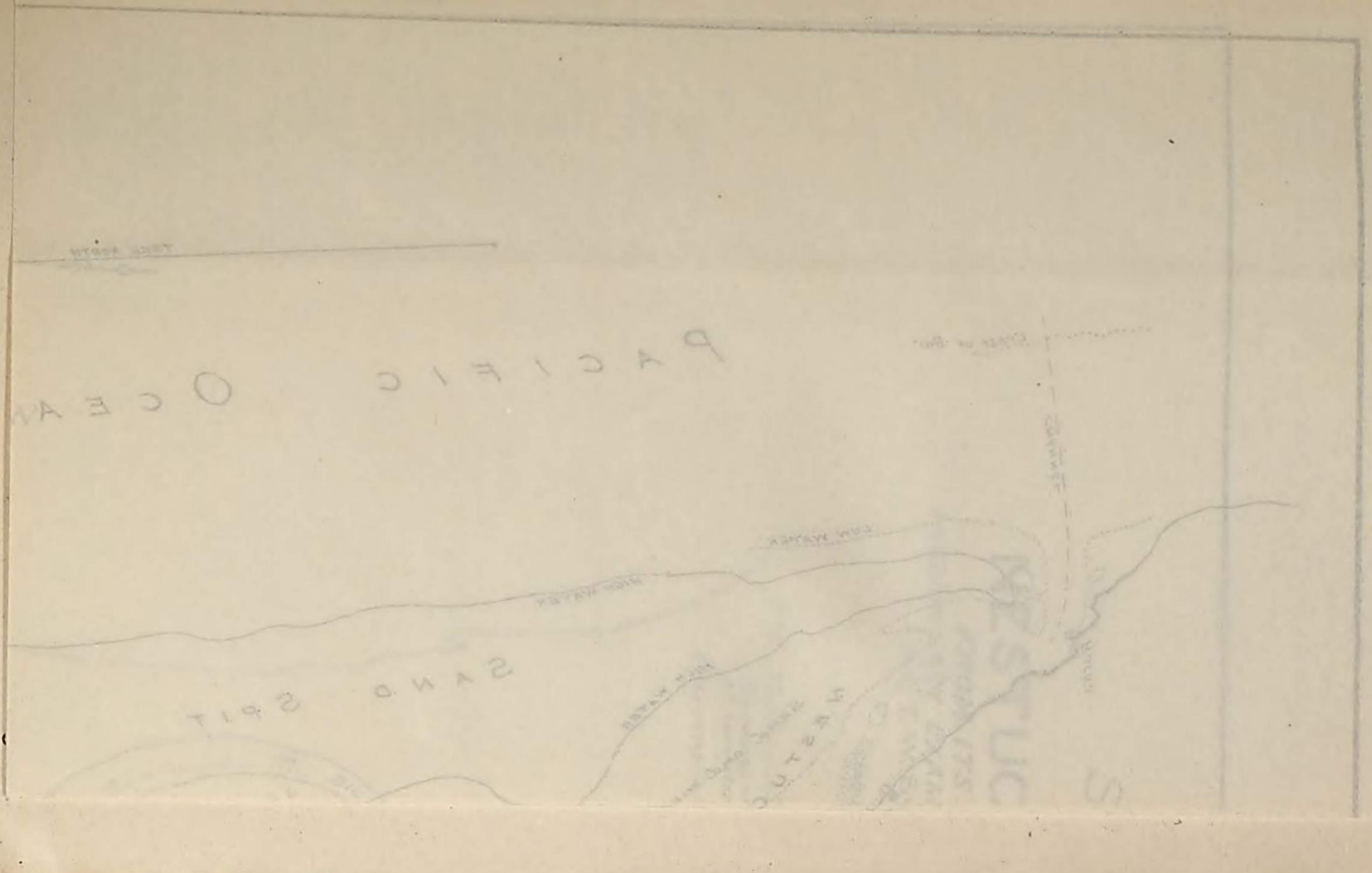

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 98.

SAUGUS RIVER, MASSACHUSETTS.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING.

With a letter from the Chief of Engineers, report of the examination of Saugus River, Massachusetts.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. S. M. Mansfield, Corps of Engineers, dated October 27, 1892, of a preliminary examination of Saugus River, Massachusetts, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 27, 1892, by Lieut. Col. S. M. Mansfield, Corps of Engineers, of the results of a preliminary examination of Saugus River, Massachusetts, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Mansfield, concurred in by this office, that Saugus River is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF SAUGUS RIVER, MASSACHUSETTS.

UNITED STATES ENGINEER OFFICE,
Boston, Mass., October 27, 1892.

GENERAL: In accordance with the requirements of letter from your office of July 14, 1892, I have the honor to submit the following report upon the examination of Saugus River, Massachusetts, as provided for in section 6 of the river and harbor act approved July 13, 1892:

Saugus River enters Lynn Harbor, Massachusetts, from the westward, flowing through marsh land. Its valuable portion for commercial purposes is below the turnpike crossing, about 12,000 feet from its mouth. About 6 feet depth at mean high water can be carried to a small coal dock at this crossing. About 3,200 feet below the turnpike is the bridge of the Eastern Railroad, and between the latter and the bridge of a branch of the Eastern Railroad (6,000 feet), and on the northern bank, is located the new and extensive factories of the General Electric Company, which has built a wharf and is now engaged in dredging the river to accommodate the shipment of coal and heavy products of their works. About 1,000 feet below the latter bridge is the crossing of the Boston, Revere Beach and Lynn Railroad.

It is thought the present improvements being made by the Electric Company will satisfy all the demands of commerce in the near future, and I am of opinion that the river is unworthy of improvement by the General Government.

I have to add that the approved project for the improvement of Lynn Harbor contemplates the expenditure of the last appropriation therefor, of $10,000, in dredging the bars at the entrance of the river to a depth of 8 feet at mean low water.

Very respectfully, your obedient servant,

S. M. MANSFIELD,
Lieut. Col. of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 99.

DURHAMS ESTUARY, NORTH CAROLINA.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, a report of the examination of Durhams Estuary, North Carolina.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 7, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. W. S. Stanton, Corps of Engineers, dated November 22, 1892, of a preliminary examination of Durhams Estuary, North Carolina, from mouth to village of Edwards Mill, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated November 22, 1892, by Maj. W. S. Stanton, Corps of Engineers, upon preliminary examination of Durhams Estuary, North Carolina, from mouth to village of Edwards Mill, made in compliance with the terms of the river and harbor act approved July 13, 1892, together with report thereon by Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.

Both these officers give the opinion that this stream is not worthy of improvement by the General Government, and in this opinion I concur.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF DURHAMS ESTUARY, NORTH CAROLINA, FROM MOUTH TO VILLAGE OF EDWARDS MILL.

UNITED STATES ENGINEER OFFICE,
Wilmington, N. C., November 22, 1892.

GENERAL: In compliance with your letter of July 14, charging me with a preliminary examination, pursuant to a requirement of the river and harbor act of July 13, 1892, of "Durhams Estuary, North Carolina, from mouth to village of Edwards Mill," I have the honor to submit the following:

The estuary is a branch of the Pamlico River, on its right (southerly) bank, 16½ miles below the town of Washington, and is shown as Durhams Creek on Coast Survey Chart No. 144[1], whereon it is delineated from the mouth to within about one-half mile of Edwards Mill.

Its width narrows from about one-third of a mile at its mouth to about 500 feet 3 miles above, diminishing in the next mile and a half to about 125 feet at Bonners Bridge, and in another mile and a half to 40 to 50 feet at Ross Landing.

Throughout the 6 miles up to Ross Landing there is a good channel, diminishing in width from about 150 or 200 feet at the mouth to about 50 feet 4½ miles above at Bonners Bridge. The channel is obstructed only by a wagon bridge and the remains of a timber dam, both at Bonners Bridge, and is believed to have a mid-channel depth nowhere less than 6 feet at the usual stage, except upon a shoal of sand about 3¾ miles above the mouth, and approximately 400 feet long, upon which the least channel depth is 3 feet.

In the mile and a half from Bonners Bridge to Ross Landing there are six double bends, only two or three of which are so sharp as to be somewhat difficult for small vessels.

Were there anything whatever to call them to Ross Landing, small vessels could readily ascend to that point with a draft of 3 feet were a draw placed in Bonners Bridge and a section cut from the old dam, and with a draft of 5 feet were a cut about 400 feet in length to be dredged through the shoal.

The land on either side of the estuary is a ridge of sandy soil, timbered with pine or pine and oak. For the greater part of the 6 miles up to Ross Landing the stream is immediately bordered on either side by a marsh from a few to a hundred or more yards in width, but at occasional points the firm timbered land extends to the water's edge, forming "landings," such as Ross Landing, where logs are rolled into the water and made into rafts, which are poled to the lower part of the estuary, whence they are towed to the mills on the north bank of the Pamlico.

Up to Ross Landing the current is very sluggish, and there is little fluctuation in depth other than that caused by winds, which are said to cause sometimes an increase as great as 2 or 3 feet.

At Ross Landing the stream abruptly changes in character, and lies

for 2 miles thence to the village of Edwards Mill in a somewhat thickly timbered cypress swamp. From a width of about 30 feet and a least depth of 3 feet just above the landing it diminishes to a width of 10 and a depth of 2 feet in the vicinity of the village. For the greater part of the 2 miles it is choked with logs, stumps, and snags, and is exceedingly tortuous, containing several bends so sharp as to considerably hamper a 20-foot skiff, and impracticable for navigation, even if cleared of snags, except by small pole boats.

The only point on the stream at which any freight is shipped or received by water is Bonners Bridge, where there are two stores and about fifteen houses. One vessel, the schooner *Louisa*, of 10.98 tons, plies between Bonners Bridge and Washington weekly throughout the year. She can carry over the shoal, about three-fourths of a mile below the bridge, about 11 tons with a draft of 3 feet, and has full cargoes to that draft about two months (November and December) annually, but is said to be usually able to carry all freight at hand at each trip. During the other ten months she is said to have light freights, less than she can carry. Last year she is reported to have carried 300 bales of cotton. She carries down, besides cotton, a small quantity of naval stores, eggs, and potatoes, and takes up merchandise in return.

Edwards Mill is a village containing two stores and a few houses, about 3½ miles by the creek and 2½ miles by a sandy road, above Bonners Bridge. By the United States census the town of Edwards Mill contained in 1890 a population of 62.

The object of the improvement of the creek which the citizens of Edwards Mill desire is to permit vessels or boats to ascend to within about one-fourth of a mile to the village, and thus save 2¼ of the 2½ miles of wagon transportation to and from Bonners Bridge for the freight which they ship and receive by the schooner, and which cannot by the most favorable statements (somewhat in conflict with those made at Bonners Bridge) exceed 10 tons each way weekly, and also to cheapen the transportation on the corn produced and on the merchandise brought directly from Washington by the farmers in the adjacent sparsely settled country.

As far as regards the character of the stream itself it would be worthy of improvement to Bonners Bridge or even Ross Landing for vessels of 5 feet draft. But its present condition up 4½ miles to Bonners Bridge is adequate to all needs of commerce both present and at least in the near future; its improvement 1½ miles farther to Ross Landing by cutting through the dam and ameliorating perhaps two or three bends, would not, owing to the topography, materially shorten the haul to Edwards Mill or benefit any interest to a degree worthy of consideration; while the creek for the upper 2 miles through the swamp to Edwards Mill is not worthy of any expenditure of public money.

Furthermore, the 5½ miles that are or could be navigated penetrate so short a distance, only 5 miles from the Pamlico River, the benefit of any application of public funds to the estuary would be restricted to a very small section and, in a country so sparsely populated, to a small number of people.

Beaufort County, in which this estuary is, had, in 1890, by the United States census, a rural population (excluding the town of Washington) of about 25 per square mile. It produced in 1889, by the census, 5,056 bales of cotton on 15,887 acres, 221,659 bushels of corn on 19,350 acres, and 27,227 bushels of oats on 2,523 acres, being one-third of a bale of cotton, 10½ bushels of oats, or 11½ bushels of corn per acre. The other

cereals grown in the county were 475 bushels of wheat, 200 bushels of buckwheat, and 20 bushels of rye.

The examination was made in detail by my assistant, First Lieut. E. W. Van C. Lucas, Corps of Engineers, November 10 to 14, and upon its conclusion I ascended the estuary with him to Edwards Mill.

I am obliged to report that in my opinion Durhams Estuary from the mouth to Edwards Mill is not worthy of improvement by the General Government.

Respectfully submitted.

W. S. STANTON,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.
(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., November 26, 1892.

Respectfully submitted to the Chief of Engineers.

In view of the statements of the local engineer, I am of the opinion that this stream is not "worthy of improvement by the General Government."

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 100.

LINCOLNVILLE HARBOR, MAINE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Lincolnville Harbor, Maine, locally known as Duck Trap Harbor.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. Peter C. Hains, Corps of Engineers, dated October 17, 1892, of a preliminary examination of Lincolnville Harbor, Maine, locally known as Duck Trap Harbor, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 17, 1892, by Lieut. Col. Peter C. Hains, Corps of Engineers, of the results of a preliminary examination of Lincolnville Harbor, Maine, locally known as Duck Trap Harbor, made to comply with provisions of the river and harbor act approved July 13, 1892.

Lieut. Col. Hains is of opinion that Lincolnville Harbor is not worthy of improvement by the General Government, and I concur in his views.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF LINCOLNVILLE (DUCK TRAP) HARBOR, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., October 17, 1892.

GENERAL: In compliance with requirements of Department letter of July 14, 1892, I have made a preliminary examination of Lincolnville Harbor, Maine, and have the honor to submit the following report:

Lincolnville Harbor is locally known as Duck Trap Harbor. It is located on the west shore of Penobscot Bay, about 9 miles south of Belfast, and about 1 mile north of the town of Lincolnville. The harbor is in two parts—an outer and an inner harbor. The latter is of small area and almost entirely landlocked. The depth, however, is only 3 feet at low tide in places, and for the most part the bottom is bare at that stage. The tide rises and falls about 9½ feet. An insignificant stream called Duck Trap River empties into the inner harbor. At the head of this harbor is a bridge, and a short distance farther on a dam which supplies power for a sawmill. Besides the mill there are two cooper shops, one limekiln, and a wharf.

I was informed that 40,000 barrels are manufactured at this place and shipped to Rockland annually, where they are used for packing lime. These barrels have a value of about $4,000 to $5,000. It is said that from 8,000 to 10,000 barrels of lime are also shipped.

The back country is not well cultivated, being rough and rocky, but there is plenty of good limestone, and the lime shipped from here is made from it.

A survey was made of this harbor in 1878, under the direction of Col George Thom, Corps of Engineers, U. S. A., and a plan for deepening the harbor to 3 feet at mean low tide suggested. Such an improvement would, in my opinion, be of little value. Vessels would ground at low or even half tide, just as they do now. If any improvement be made at all, it should be one giving more than 3 feet, as all the freighting is done on vessels that draw about 8 to 9 feet. The number of such vessels, however, is small—too small to justify the Government in expending the amount of money that would be necessary to make a satisfactory improvement. Besides, a dredged channel through the outer harbor, unless protected in some way, would be likely to fill up in southerly gales. * * *

In view of the above facts I am of the opinion that Lincolnville Harbor, Maine, is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

PETER C. HAINS,
Lieut. Col., Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 101.

TENNANT HARBOR, MAINE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Tennant Harbor, Maine.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. Peter C. Hains, Corps of Engineers, dated October 18, 1892, of a prelimianry examination of Tennant Harbor, Maine, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C. December 5, 1892.

SIR: I have the honor to submit herewith a copy of report dated October 18, 1892, from Lieut. Col. Peter C. Hains, Corps of Engineers, of the results of a preliminary examination of Tennant Harbor, Maine, made to comply with requirements of the river and harbor act approved July 13, 1892.

Lieut. Col. Hains states that in his opinion the harbor is not worthy of improvement by the General Government, and I concur in this opinion of the local engineer.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF TENNANT HARBOR, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., October 18, 1892.

GENERAL: In compliance with requirements of Department letter of July 14, 1892, I have made a preliminary examination of Tennant Harbor, Maine, and have the honor to submit the following report:

Tennant Harbor is located on the west side of the entrance to Penobscot Bay, about 10 miles south of Thomaston. On the Coast Survey charts it is shown as a village at the end of the arm of the bay, extending westward from Southern Island. I was informed, however, that Tennant Harbor includes an arm of the bay to the northeastward, called Long Cove. Taken to include the latter, Tennant Harbor is a place of some importance, both as a harbor of refuge in stormy weather and as a shipping point for granite, considerable quantities of which are quarried in this vicinity. During the year 1891 the three principal granite companies shipped about 27,500 tons of granite, consisting of rough dimension stone, grout, and paving-stones. During the past season the amount has been much less, owing to the strike of the stone-cutters. It is estimated that about 30,000 tons of granite would be a fair year's shipment. There is also a small quantity of ice shipped, say about 500 to 600 tons. The total value of shipments may be stated at about $125,000 annually.

I was informed that about 3,000 tons of coal are brought there for consumption in the quarries. As a rule, however, vessels come to Tennant Harbor light.

Tennant Harbor is sometimes sought as a harbor of refuge in northeasters, it being easy of access and well protected; besides, it is generally clear of ice in the winter.

A small steamer that runs from Rockland south touches here, carrying passengers and miscellaneous freight.

Mr. Hall, the deputy collector of the port, estimates that fully 2,000 vessels, including those that seek it as a harbor of refuge, visit Tennant Harbor annually.

I endeavored to find out what improvements were needed in behalf of navigation. I was informed that there was a wreck in Long Cove, just west of Clark Island, that obstructed navigation; that a breakwater was wanted between Southern Island and the mainland; and that the shoal known as Harts Ledge needed to be marked by a beacon.

I had an examination made of the wreck, and it was found that the stern lies in about 6 feet of water on the westerly edge of the channel following the upper shore of Clark Island, nearly opposite the wharf of the Long Cove Granite Company. The bow is several feet above high tide. Very few vessels use this channel, not more than five or six annually. The wreck is not an obstruction to navigation, but rather an aid, as it serves as a beacon to mark the ledge. It has been there for twenty years and its removal would not be a benefit to navigation.

In regard to the breakwater between Southern Island and the main land at Harts Neck, I am of the opinion that it is not needed. The steamer that touches at Tennant Harbor generally uses this passage. The depth at low tide is 3 feet, but the rise and fall being over 9 feet, it is seldom too shoal for her. Besides, the fishermen use it constantly and would object to its closure. It is claimed that the undertow in southeasters would be much reduced and the area of good anchorage increased, but an increased area for anchorage is not needed at the present time, and the slight undertow in the harbor is a trifling matter, dangerous

neither to life nor property, and can easily be avoided altogether by anchoring well to the westward or going into Long Cove.

In regard to the need of a beacon on Harts Ledge it may be remarked that Harts Ledge is not located in any part of Tennant Harbor. It lies about a mile south of Tennant Harbor light, and the question of properly marking it belongs to another department of the Government.

In view of the above I am of the opinion that Tennant Harbor, Maine, is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

PETER C. HAINS,
Lieutenant-Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 102.

PORTLAND HARBOR, MAINE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Portland Harbor, Maine.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. Peter C. Hains, Corps of Engineers, dated November 19, 1892, of a preliminary examination of Portland Harbor, Maine, with a view to extending the channel along the foot of the wharves on the south side of the harbor so as to give a depth of 8 feet at mean low water as far south as Plush Mill Wharf, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report dated November 19, 1892, by Lieut. Col. P. C. Hains, Corps of Engineers, upon preliminary examination of Portland Harbor, Maine, with a view to extending the channel along the front of the wharves on the south side of the harbor, so as to give a depth of 8 feet at mean low water as far south as the Plush Mill Wharf, made to comply with requirements of the river and harbor act approved July 13, 1892.

Col. Hains states that he is of the opinion that Portland Harbor is not worthy of improvement by the General Government in the manner specified, and I concur in this opinion.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF PORTLAND HARBOR, MAINE, WITH A VIEW TO EXTENDING THE CHANNEL ALONG THE FRONT OF THE WHARVES ON THE SOUTH SIDE OF THE HARBOR, SO AS TO GIVE A DEPTH OF 8 FEET AT MEAN LOW WATER AS FAR SOUTH AS THE PLUSH MILL WHARF.

UNITED STATES ENGINEER OFFICE,
Portland, Me., November 19, 1892.

GENERAL: In compliance with requirements of Department letter of July 14, 1892, I have made a preliminary examination of Portland Harbor, Maine, "with a view to extending the channel along the front of the wharves on the south side of the harbor, so as to give a depth of 8 feet at mean low water as far south as the Plush Mill Wharf," and have the honor to submit the following report:

The commercial importance of Portland Harbor is well known. The General Government has recognized this in expending large sums on the improvement of its channels and the construction of a breakwater. No dredging, however, has been done on the south side of the harbor, as no necessity for it has existed. A few wharves have been built, but those west and south of the Marine Railway are cheap structures which, for lack of use, have been allowed to go to ruin.

From the Ferry Wharf westward the shore line recedes from the channel until it approaches the bridge, near which is a deep indentation or cove. In front of this shore line is a large area of flats. I am informed that various projects for filling these flats have been considered, but none adopted, though the idea seems never to have been definitely abandoned. They remain as they long have been, nearly bare at low tide. As the mean rise and fall of the tide is about 9 feet, there is about that depth on them at high tide. This depth is not sufficient, however, for vessels of any size.

The Plush Mill Wharf, located about half a mile west of the Ferry Wharf, is a cheap, temporary structure, built on wooden piles. It is 31 feet wide and 214 feet long, widened to 47 feet at the outer end. The wharf is located on the flats referred to, so that the approaches to it are impracticable except when the tide is in. It was built, however, within the last year, during which time the conditions have in no degree changed.

I am informed that besides the plush mill, there are other manufactories likely to be established on the south side of the harbor, which, it is alleged, will give employment to a large number of operatives and require the consumption of large quantities of coal and other supplies. What prospect there is of the realization of these anticipations I am not able to say, but at the present time the plush mill is the only one in existence, and it is not yet in operation.

I have not been able to obtain any reliable data as to the amount of coal and supplies that will be needed, but I am informed that the

amounts will be large. The plush mill, itself, is not a large establishment, and unless other industries spring up, of which there is as yet no visible evidence, I can not see what will create this large demand. The excavation of the channel referred to will not, in my opinion, do it. Under the circumstances it is not practicable to make a reasonably fair estimate of the prospective demands of commerce on this side of the harbor. These will depend entirely on the developments of the future. That the immediate demands are quite small is evident. I have been in communication with persons interested in the development of this locality, but I have not been able to obtain any tangible data to show the necessity for such improvement.

I do not understand that a channel such as the order for examination contemplates is needed for the accommodation of vessels other than those that will go to the Plush Mill Wharf. There are in fact no others west of the marine railway; there are only the ruins of two pile structures that once were wharves.

In 1882, by authority of the legislature of the State, harbor lines were established for Portland Harbor. That on the south side is a straight line from the Ferry Wharf to the Portland Bridge, and passes about 100 feet outside of the existing dry dock. The Plush Mill Wharf is so located that its outer end does not come within 1,000 feet of this harbor line. Hence to extend the channel south to the Plush Mill Wharf will carry it far inside the duly established harbor line. In this connection it is perhaps not improper to call attention to section 5 of the harbor and river act of 1892, which provides—

> That no money appropriated for the improvement of rivers and harbors in this act or hereafter shall be expended for dredging inside of harbor lines duly established.

* * * * * * *

In view of the above, I am of the opinion that Portland Harbor, Maine, is not worthy of improvement by the General Government in the manner specified in the order for examination, viz:

> With a view to extending the channel along the front of the wharves on the south side of the harbor, so as to give a depth of 8 feet at mean low water as far south as the Plush Mill Wharf.

Very respectfully, your obedient servant,

PETER C. HAINS,
Lieutenant-Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 103.

SNOHOMISH RIVER, WASHINGTON.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Snohomish River, Washington, from its mouth to Lowell.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Thomas W. Symons, Corps of Engineers, dated October 14, 1892, of a preliminary examination of Snohomish River, Washington, from its mouth to Lowell, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 14, 1892, by Capt. Thomas W. Symons, Corps of Engineers, upon preliminary examination of Snohomish River, Washington, from its mouth to Lowell, made in accordance with requirements of the river and harbor act approved July 13, 1892.

From this report it will be seen that the Snohomish River in the lower part of its course has formed a delta through which it flows in four separate channels or sloughs. Three of these channels are found below the town of Lowell. Of these three, Union Slough is narrow and shallow, and is completely stopped for the purposes of navigation at its lower end by a close pile bridge, and Steamboat Slough has an ample depth of water for any craft that can enter the river across the tide flats beyond the mouth. The "Old River," the remaining channel below

Lowell, is so shoal that it is practically dry at low water; it has never been used to any extent for purposes of navigation, but has been largely used for storing logs, and these, with the numerous piles, dolphins, booms, etc., in it have had a tendency to shoal it, besides being in themselves obstructions to navigation.

Capt. Symons reports that the growing importance of the towns of Lowell and Everett may render it desirable that this channel be cleared, and that in his opinion this "Old River" is worthy of improvement by the General Government to the extent of removing all snags, piles, dolphins, etc., forming obstructions to navigation.

A survey to determine the amount of work to be done would cost about $250, but such a survey seems scarcely necessary. It is difficult to make a close estimate of the cost of such work, and a general estimate can be made as well without the survey as with it.

If an allotment could be provided for this work from the appropriation for "improving Puget Sound and its tributary waters," the work could be done by the snag boat *Skagit*, which belongs to the Government, and is used in keeping clear the various navigable rivers entering Puget Sound.

Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division, states that, for the reasons given in this report, the Snohomish River is regarded by him as worthy of improvement by the General Government to the extent of removal of snags, piles, dolphins, etc., that can be handled by the snag boat *Skagit*.

I concur in the views of these officers.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF SNOHOMISH RIVER, WASHINGTON, FROM MOUTH TO LOWELL.

UNITED STATES ENGINEER OFFICE,
Portland, Oregon, October 14, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination of "Snohomish River, Washington, from mouth to Lowell:"

The Snohomish River is formed by the union of the Skykomish and Snoqualmie rivers and is about 20 miles in length. It flows into Possession Sound, one of the divisions of Puget Sound, in latitude N. 48°.

In the lower portion of its course it has formed a delta and it flows through this delta in four separate channels or sloughs.

Lowell is a town in Snohomish County, on the Snohomish River, about 7 miles below Snohomish City and about 9 miles from the mouth of the river by way of Steamboat Slough. It is quite a lumber center and just below it has been erected the Everett Paper Mill.

Lowell is in the extreme upper part of the * * * city of Everett.

The mouth of the river may properly be considered to be between the highlands, of which the extremities are Priest Point on the north and Preston Point on the south. These points are 1¼ miles apart.

One of the sloughs above mentioned takes off from the main river about 1 mile above Lowell and flows through the eastern part of the delta. This is known as Ebey Slough. This is a navigable highway,

but is crooked and narrow. It has one steamboat and two small-boat connections with Steamboat Slough.

About 3 miles below Lowell the river divides into three sloughs known as "Steamboat Slough," "Union Slough," and "Old River." "Union Slough" is narrow and shallow, and is completely stopped for purposes of navigation at its lower end by the close pile bridge of the Great Northern Railroad. It has very little value for purposes of navigation.

"Steamboat Slough" is the most important of all the mouths of the Snohomish, and is practically the only one navigated by steamboats entering and leaving the river. It has an ample depth of water for any craft that can enter the river across the tide flats beyond the mouth.

The "Old River" is so shoal that it is practically dry at low water. It has never been used to any extent for purposes of navigation. It has been largely used for storing logs, and these, with the numerous piles, dolphins, booms, etc., in it, have had a tendency to shoal it, besides being in themselves obstructions to navigation.

The growing importance of Lowell and Everett, into which Lowell has been practically absorbed, may render it desirable that the "Old River" should be cleared of snags, old piles, dolphins, etc., which obstruct navigation in themselves and tend to cause deposition of sediment.

There is a snag-boat, the *Skagit*, owned by the Government, which is used in keeping the various navigable rivers entering Puget Sound as clear of snags as possible.

The limited amount of money available to run her has never enabled any of the rivers to be completely and systematically cleared of snags and similar obstructions; work has had to be done only where it seemed the most absolutely necessary. In consequence of this this "Old River" channel has been neglected. It is my opinion that this "Old River" channel is worthy of improvement by the General Government, to the extent of removing all snags, piles, dolphins, etc., forming obstructions to navigation.

A survey to determine the amount of work to be done and to enable a full report, plans and estimates to be made would cost about $250. Such a survey seems scarcely necessary. It is difficult to make a close estimate of the cost of such work, and a general estimate of the cost can be made as well without the survey as with it. * * *

Very respectfully, your obedient servant,

THOMAS W. SYMONS,
Captain, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. G. H. Mendell, Corps of Engineers, Division Engineer, Pacific Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
San Francisco, Cal., November 7, 1892.

Respectfully forwarded to the Chief of Engineers.

For reasons herein given the Snohomish River is regarded as worthy of improvement by the General Government to the extent of removal of snags, piles, dolphins, etc., that can be handled by the snag-boat *Skagit*.

G. H. MENDELL,
Colonel, Corps of Engineers, Division Engineer.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 104.

HARDYS POINT, BELOW PEMBROKE, ME.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the channel near Hardys Point, below Pembroke, Me.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. Peter C. Hains, Corps of Engineers, dated October 1, 1892, of a preliminary examination of the channel near Hardys Point, below Pembroke, Me., made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated October 1, 1892, by Lieut. Col. Peter C. Hains, Corps of Engineers, of the results of preliminary examination of channel near Hardys Point, below Pembroke, Me., made to comply with requirements of the river and harbor act approved July 13, 1892.

Lieut. Col. Hains is of opinion that the locality is not worthy of improvement by the General Government, and I concur in his views.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF CHANNEL NEAR HARDYS POINT, BELOW PEMBROKE, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., October 1, 1892.

GENERAL: In compliance with requirements of Department letter of July 14, 1892, I have made a preliminary examination of the channel near Hardys Point, below Pembroke, Me., and have the honor to submit the following report:

The channel referred to is a part of the head waters of Pennamaquan River, a tidal estuary of Cobscook Bay. The town of Pembroke is located near by, and a few years ago large ships were built there. Iron works were also established, and it is said that a fine grade of iron was manufactured. The shipbuilding industry has disappeared, and the manufacture of iron has ceased.

The country in this neighborhood is healthy, fertile, and fairly well cultivated, and it is claimed that most of the marketable produce is hauled in wagons to Eastport, a distance of about 11 miles, as there is no railroad communication, and that by water is available only when the tide is above the ordinary low stages. In ordinary low spring tides there is no water at all in the channel near Hardys Point, but the river is deep up to within a mile and a quarter of that place.

The tide has a mean rise and fall of 18 feet, consequently there is no lack of depth for large vessels at high tide.

A small steamer of about 30 tons register was recently put on the route between Eastport and Pembroke, as an experiment, and has been running all summer. She is the only steamer that runs between these points. As the river is practically dry near Hardys Point at low tide, she can not land at her wharf in such stages, and consequently can not run on schedule time, unless she makes her landings about a mile below the town. This steamer draws about 7 feet, loaded, and is said to carry about 50 tons of assorted freight and about 100 passengers weekly. During the winter season she does not run at all. It is thought that the freight and passenger business would be largely increased if she could run on schedule time, and it would be a great convenience to the people of Pembroke and vicinity if she did so.

The improvement desired is the dredging of a channel from the deep water near Smalls Island up to the steamboat landing above Hardys Point. Parties interested in the improvement asked for seem to think that a channel of sufficient dimensions to accommodate this small steamer could be made for a very small sum of money, but a channel deep enough to enable even this small steamer to run on schedule time, and make her landings above Hardys Point, would have to be not less than 8 feet deep at low spring tides, or about 11 feet at mean low tide. A serviceable channel of that depth can not be made for a small sum of money. One of less depth would subject the steamer to occasional delays when low spring tides were coincident with the time of her arrival or departure. If any improvement be made at all, it should be one that would be of general use, and not one exclusively for this small steamer.

Such an improvement would call for the excavation of a channel about 100 feet wide and 8 feet deep at low spring tide, with a turning basin 200 feet wide above Hardys Point. * * *

Such an improvement would be a convenience to the people living in the vicinity of Pembroke, but as a business enterprise there does not

seem to be sufficient commerce in existence, or in prospect, to justify the Government in undertaking such a work. I am therefore of the opinion that the channel near Hardys Point, below Pembroke, Me., is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

PETER C. HAINS,
Lieutenant-Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 105.

ROCKLAND HARBOR, MAINE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Rockland Harbor, Maine.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. Peter C. Hains, Corps of Engineers, dated August 17, 1892, of a preliminary examination of Rockland Harbor, Maine, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated August 17, 1892, by Lieut. Col. Peter C. Hains, Corps of Engineers, of the results of preliminary examination of Rockland Harbor, Maine, made to comply with the provisions of river and harbor act approved July 13, 1892.

I concur in the opinion of Lieut. Col. Hains that this harbor is worthy of improvement by the General Government.

An estimate of $1,000 is submitted as the cost ot the surveys necessary to preparation of plan and project with estimate of improvement proposed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF ROCKLAND HARBOR, MAINE.

UNITED STATES ENGINEER OFFICE,
Portland, Me., August 17, 1892.

GENERAL: In compliance with requirements of Department letter, dated July 14, 1892, I have made a preliminary examination of Rockland Harbor, Maine, and have the honor to submit the following report:

The harbor of Rockland is one of the most important on the coast of Maine. Besides the large commerce of the place, it is used to a great extent as a harbor of refuge for coasters, and thousands of vessels seek its protection during easterly storms. It is no unusual thing to see a hundred vessels at anchor in this harbor in a storm. Its importance as a harbor of refuge, as well as the volume of trade, is on the increase.

The harbor is obstructed by a ledge known as South Ledge, and another, or bunch of bowlders, known as Jameson Point Ledge. Both of these are obstructions to navigation, but as they are well known and are marked by buoys they are not dangerous. There are said to be numerous other bowlders that lie on the bottom, and that are not indicated on charts, and their presence is discovered only when some vessel runs on them. Numerous accidents of this character are reported to have happened.

In view, therefore, of the importance of this harbor, I am of the opinion that it is worthy of improvement, and I recommend that a survey be made to determine the character and cost of such improvement as ought to be made.

It is estimated that a survey will cost about $1,000.

Very respectfully, your obedient servant,

PETER C. HAINS,
Lieutenant-Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 106.

PARISH CREEK, MARYLAND.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the mouth of Parish Creek, Maryland.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 7, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers dated December 6, 1892, together with a copy of a report from Maj. Charles E. L. B. Davis, Corps of Engineers, dated November 30, 1892, of a preliminary examination of the mouth of Parish Creek, Maryland, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 6, 1892.

SIR: I have the honor to submit the accompanying copy of report dated November 30, 1892, by Maj. Charles E. L. B. Davis, Corps of Engineers, upon preliminary examination of the mouth of Parish Creek, Maryland, made to comply with provisions of the river and harbor act approved July 13, 1892.

Maj. Davis reports that in his opinion Parish Creek is not worthy of improvement by the General Government, and, for the reasons given by the local engineer, the Division Engineer concurs in this opinion.

In the judgment of this office the mouth of Parish Creek is not worthy of improvement by the United States.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF MOUTH OF PARISH CREEK, MARYLAND.

UNITED STATES ENGINEER OFFICE,
Washington, D. C., November 30, 1892.

GENERAL: In compliance with the instructions contained in Department letter of July 14, 1892, I have the honor to submit the following report of a preliminary examination of the mouth of Parish Creek, Maryland, made on November 14, 1892, to comply with the provisions of the river and harbor act approved July 13, 1892.

Parish Creek, Maryland, is a very small arm of West River, the latter being a tidal estuary of Chesapeake Bay, which it enters on the west side at Curtis' Point, 12 miles (by water) below Annapolis, Md. Parish Creek is situated on the south side of West River, the mouth of the creek being about 1,000 yards inside or southwest of Curtis Point. The width at the mouth is about 1,400 feet, while within the creek is only about three-fifths of a mile long and from 600 to 1,400 feet in width. The soundings in the creek, given upon the Coast Survey map of 1846, show depths varying from 3 to 5 feet at low tide, while at the mouth a depth of 3 feet is given. Since the date of this map, however, the depth at the mouth has decreased by the formation of a bar which is practically dry at low tide, so that the small oyster boats drawing 18 inches can not then pass over it. On the occasion of my visit to this locality I had an interview with one of the citizens who requested the examination, who informed me that there were some 200 small oyster boats belonging in Parish Creek and that 13 bugeyes and sloops drawing from 4 to 6 feet traded from there. There are three stores on the creek. I requested that a written statement of the amount and value of the annual trade be furnished me, but it has not been received.

The improvement desired is, I was informed, a channel 80 feet wide and from 7 to 8 feet deep to enable a steamboat to enter the creek and also to permit the oyster boats and sloops to enter at night and find shelter during storms. So far as facilities for steamboat navigation are concerned I may say that there is one steamer which plies between Baltimore and Annapolis and landings on West River, making three trips a week. This steamer stops at two wharves near the head of the river, the one on the side nearest Parish Creek being known as Chalk Point, which is distant from the creek about 3 miles by water and 5 miles by road. The representative of the steamboat line whom I consulted did not express any desire to go into Parish Creek and would prefer not to do so. The presumption is that there is not much trade there other than in oysters, which are carried to Baltimore in the small bugeyes and sloops. It appears, therefore, that the improvement here desired is really for the accommodation of the small boats which go out to tong oysters and the sailing vessels which take the oysters to market. I take it, however, that the system of river and harbor improvements as carried on by the United States is not intended to provide for navigation of this character or for interests so clearly local.

Moreover, the oyster industry is especially fostered by the State of Maryland, which has an elaborate system of laws for its regulation.

No steamer is allowed to be used in catching oysters in the waters of the State, and no other boat without first being licensed.

The comptroller of the treasury is authorized to issue licenses upon the application of any person who has been a resident of the State for twelve consecutive months next preceding such application, to employ such boat in taking or catching oysters with scoop, dredge, or similar

instrument within the waters of Chesapeake Bay, within certain specified limits.

Certain fines and penalties are established for specified offenses. For instance, it is made unlawful to take or catch oysters on Sunday or at night under penalty of a fine not less than $50 or more than $300, or a sentence to the house of correction of not less than three months nor more than one year, the vessel or canoe to be forfeited at the discretion of the judge or justice of the peace trying the case.

All the moneys received or obtained from dredging licenses and all fines, penalties, and forfeitures are to be paid into the treasury and placed to the credit of a fund called "the oyster fund," to be used in maintaining the proper police for the protection of the industry.

It would appear, therefore, that any relief which is needed for the oyster industry should properly be granted by the State of Maryland.

In view of the above considerations I respectfully report that, in my opinion, Parish Creek is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

CHAS. E. L. B. DAVIS,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., December 5, 1892.

Respectfully submitted to the Chief of Engineers.

For the reasons given by the local engineer I concur with him in the opinion that this locality is not "worthy of improvement by the General Government."

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 107.

HARBOR AND MARINE WAYS AT PADUCAH, KY.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the Ohio River between Livingston Point and the head of Tennessee Island, with the view of protecting the harbor and marine ways at Paducah, Ky.

DECEMBER 9, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Col. Henry M. Robert, Corps of Engineers, dated August 23, 1892, of a preliminary examination of Ohio River between Livingston Point and the head of Tennessee Island, with the view of protecting the harbor and marine ways at Paducah, Ky., made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report dated August 23, 1892, by Lieut. Col. Henry M. Robert, Corps of Engineers, of the results of a preliminary examination of Ohio River between Livingston Point and the head of Tennessee Island, with the view of protecting the harbor and marine ways at Paducah, Ky., made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Robert, concurred in by this office, that the locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF OHIO RIVER BETWEEN LIVINGSTON POINT AND THE HEAD OF TENNESSEE ISLAND, WITH THE VIEW OF PROTECTING THE HARBOR AND MARINE WAYS AT PADUCAH, KENTUCKY.

ENGINEER OFFICE, U. S. ARMY,
Nashville, Tenn., August 23, 1892.

GENERAL: I have the honor to submit herewith the following report of a preliminary examination of the "Ohio River between Livingston Point and the head of Tennessee Island, with the view of protecting the harbor and marine ways at Paducah, Ky.," made under the provisions of the river and harbor act of July 13, 1892.

The Tennessee and Ohio rivers are nearly parallel just above their junction, the narrow peninsula separating them being known as Livingston Point. About three-fourths of a mile below the point begins Tennessee Island, which is about 2 miles long and forms the protection to Paducah Harbor. Below Tennessee Island is a large bar, so that vessels have to go below this bar to enter the harbor from the Ohio, unless they enter through the opening between Livingston Point and Tennessee Island.

The advantage to be gained by closing this gap is that the junction of the Ohio and Tennessee will be moved some miles down the river to below Paducah, so that its harbor will be kept warmer in winter, and hence freer from ice. The marine railway would thus be insured from being ever interfered with by the ice.

Parties interested in the shipping learning that I was in Paducah, protested vehemently against the filling up of the gap between Tennessee Island and Livingston Point, claiming it would greatly damage Paducah. I found the lumber interests thoroughly opposed to the so-called improvement, as it would cut them off from the Cumberland and Ohio rivers for their supplies of logs, as the rafts would have to go below Paducah in the Ohio and then be towed several miles up the Tennessee to about opposite the gap where the mills are situated. The way rafts are made up, I understand, makes this impracticable. Now boats going up the Ohio on leaving Paducah usually go through this gap.

The width of this gap is about the same as the width of the Ohio, and the cost of closing it would be very large. I do not know the average depth of water in this gap, but as the river rises from 40 to 50 feet, the dike to close the gap would probably have to be 50 feet high and, say, 4,000 feet long. * * * Judging from what I saw in Paducah the "improvement" would meet with more opposition than favor from those affected by it. My own opinion is that the benefits to be derived from this improvement do not justify its great cost and the injury that would result to the lumber and navigation interests.

By these reasons I am led to report that solely for the protection of

the harbor and marine ways at Paducah, Ky., the "Ohio River between Livingston Point and the head of Tennessee Island" is not worthy of improvement by the General Government.

There is hereto appended a copy of the protest against the so-called "improvement," signed by some of the most prominent citizens of Paducah, including among others owners and masters of steamboats, manufacturers, the postmaster, the surveyor of customs, the publishers of the Daily Standard, and two of the officers of the Paducah Marine Railway Company.

Very respectfully, your obedient servant,

HENRY M. ROBERT,
Lieutenant Colonel of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

PROTEST OF CITIZENS OF PADUCAH, KENTUCKY.

PADUCAH, KY., *August 16, 1892.*

DEAR SIR: During your late visit to this city we were greatly surprised to learn that you had been directed by an act of Congress to make a preliminary survey of that portion of the Ohio River between Livingston Point and the head of Tennessee Island, with a view of closing the chute between those points for the purpose of protecting the harbor and marine ways at Paducah.

We can not conceive who could have recommended such an unwise measure to Congress, and feel well assured that such recommendation was made, no matter by whom, under a misapprehension of what is needed for the Paducah Harbor.

The closing of that chute, besides costing a vast sum of money, would be a direct and great injury to the manufacturing and commercial interests of Paducah, and would also be a serious hindrance and interference with the navigation of the Ohio and Tennessee rivers in this vicinity. We hope, therefore, that you may find it consistent with your own views, as well as with the facts you ascertained upon your late visit here, to recommend the total abandonment of the project.

The best thing for the protection of the Paducah Harbor, in our judgment, would be the completion of the work already begun at Livingston Point, so as to prevent any further abrasion or washing away of that peninsula.

We have the honor to be, very respectfully,

J. H. Fowler, master of steamboats; J. C. Cobb, master of steamboats; Fowler Crumbaugh & Co., steamboat owners; Fowler Wharf Boat Company, wharf-boat owners; S. A. Fowler, secretary Commercial Club; J. H. Ashcraft, agent St. Louis and Tennessee River and Nashville and Paducah Packet Companies; T. H. Puryear, L. M. Richs, Ed. P. Noble & Co., wholesale grocers; St. Bernard Coal Company; L. J. Rouse, E. Farley, manufacturer; E. Farley, postmaster; Dieday & Vansendry, publishers Daily Standard; Ambrook & Rowell, insurance and real estate agents; R. J. Rouse, Langstaff-Orm Manufacturing Company, manufacturing lumber, sash doors, and blinds; H. M. Orme, member city council; John R. Puryear, surveyor of customs, Paducah, Ky.; Paducah Marine Railway Company, Wm. Hughes, secretary and treasurer; H. H. Grabar, superintendent marine railways; Chas. Reed, ex-mayor of Paducah.

Col. HENRY M. ROBERT,
United States Engineer Corps.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 108.

RANK OF CERTAIN RETIRED OFFICERS OF THE ARMY.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

A draft of a bill "to fix the rank of officers of the Army of the United States retiring after long and faithful service."

DECEMBER 12, 1892.—Referred to the Committee on Military Affairs and ordered to be printed.

WAR DEPARTMENT,
Washington City, December 8, 1892.

SIR: I have the honor to transmit herewith a draft of a bill "to fix the rank of officers of the Army of the United States retiring after long and faithful service," forwarded on November 28, 1892, by Col. E. M. Heyl, Inspector-General U. S. Army, with remarks explaining and commending the proposed measure, and to state that in submitting the draft of the bill the Major-General Commanding the Army remarks as follows:

I am not prepared to recommend this bill, as it might result in some cases in great inequality of promotion. For instance: An officer who had just been promoted from lieutenant-colonel to colonel might immediately retire with the rank of brigadier-general, while another colonel who had served in that grade many years could receive no higher reward than the former.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

CHICAGO, ILL., *November 10, 1892.*

The proposed "act to fix the rank of officers of the Army of the United States retiring after long and faithful service" is in a great degree self-explanatory, but there are certain commendatory features to which attention is especially invited:

(1) It will give deserved recognition of war service to a class of officers who are rapidly disappearing from the rolls of the Army, and

compensate them in some small measure for the delayed and lost promotion due to the consolidation and reduction of the Army in 1869 and 1870.

(2) It will enable some officers to retire from service with a rank equal to that which they held in war.

(3) While this bill will affect a comparatively small number of "war officers" in the higher grades, it will likewise benefit a large number of officers, some of whom are *still* in the grade of first lieutenant and many in the grade of captain, after a service of *thirty years or more.* It is also true that many of these officers held higher grades in war than this advanced retiring grade will give them.

(4) It will stimulate promotion to higher grades before officers shall have become too old for active field service.

The Army Register shows that this bill applies in the majority of cases to officers who came into the regular Army from the volunteer service since the war.

Under existing laws officers who commenced their service since the war will in due course attain the grade of major, lieutenant-colonel, and colonel, and some, by selection, that of general officer, before they reach the retirement age. In other words, the rewards of this class of officers, while fully earned, promise to exceed, under the reign of peace, the rewards of their elders and survivors of the great war for the nation's life. It therefore seems just to reward war service with at least one advanced grade upon retirement under the conditions named in the bill.

It is not deemed necessary to go into statistics upon a measure so manifestly just to this deserving class of officers, whose record forms the most glorious part of the nation's history since 1861; but it is hoped that every officer interested will give this matter such consideration and representation as he may deem proper to attain the end sought.

AN ACT to fix the rank of officers of the Army of the United States retiring after long and faithful service.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That on and after the passage of this act all officers of the Army of the United States below the grade of major-general, who shall have served in the war for the suppression of the rebellion and who shall have attained thirty years or more of faithful service, shall, upon their own application, be retired from active service and placed upon the unlimited retired list of the United States Army with one additional grade above the actual rank held by them at date of the passage of this act: *Provided,* That such application for retirement under this act shall be made within three years from the passage of the same.

All laws or parts of laws inconsistent with this act are hereby modified for the purposes of this act only.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 109.

CIVILIAN ENGINEERS.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

A copy of a letter from the Chief of Engineers, together with a statement showing the names and places of residence of each civilian engineer employed from July 1, 1891, to June 30, 1892, in the work of improving the rivers and harbors.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington City, December 9, 1892.

SIR: In compliance with the requirements of section 8 of the river and harbor act of August 5, 1886 (24 Stat., 335), I have the honor to transmit herewith a letter of the Chief of Engineers, dated the 7th instant, with a statement prepared from data received from the officers in charge of the different engineering districts, showing the name of each civilian engineer employed from July 1, 1891, to June 30, 1892, in the work of improving rivers and harbors, the time so employed, the compensation paid, and the place at and work on which employed.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 7, 1892.

SIR: I have the honor to submit herewith, in obedience to the requirements of section 8 of the river and harbor act of August 5, 1886, a statement prepared from data received from the officers in charge of the different engineering districts, showing the name of each civilian engineer employed from July 1, 1891, to June 30, 1892, in the work of improving rivers and harbors, the time so employed, the compensation paid, and the place at and work on which employed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

Statement showing name and place of residence of each civilian engineer employed between July 1, 1891, and June 30, 1892, under appropriations made by the river and harbor acts of August 11, 1888, and September 19, 1890, the time so employed, the compensation paid, and the place at, and work on, which employed.

Name and place of residence.	Time employed.		Compensation (per month).	Where employed.	Works on which employed.
	Mos.	*dys.*			
A. C. Both, Portland, Me	12	0	$200.00	Portland, Me	Harbors at Rockland, Belfast, and Portland, Me., and Portsmouth, N. H.; harbor of refuge at Little Harbor, N. H.; Moosabec Bar, Me.; breakwater from Mt. Desert to Porcupine Island, Me.; rivers Kennebunk, Saco, and Penobscot, Me.
F. S. Burrowes, Portland, Me	11	21	200.00	do	Harbors at Rockport, Me., and Portsmouth, N. H.; rivers Kennebec, Saco, and Kennebunk, Me., and Cocheco and Bellamy, N. H.
George S. Smith, Portland, Me	1	20	125.00	Kennebec River, Me	Kennebec River, Me.
J. Veazie, Boston, Mass	12	0	200.00	Boston, Mass	Harbor of refuge at Cape Ann, Mass.; harbors at Boston, Salem, Newburyport, Plymouth, Provincetown, Scituate, Lynn, Hingham, Chatham, Gloucester, Manchester, Winthrop, and Wellfleet, Mass.; rivers Powow, Weymouth, Ipswich, and Merrimac, Mass.; examinations and surveys.
Sophus Haagensen, Boston, Mass	5	17	180.00	do	Do.
T. T. Hunter Harwood, Rockport, Mass.	3	0	150.00	do	Do.
Edward Parrish, Newport, R. I.	2	0	$200.00	Newport, R. I.; harbors at Vineyard Haven, Mass., and Point Judith, R. I.; cove, Coaster Harbor Island, R. I.	Harbors at Nantucket, Hyannis, Edgartown, Vineyard Haven, Wareham, New Bedford, and Westport, Mass.; Block Island, Point Judith, Newport, and Greenwich Bay, R. I., and Stonington, Conn.; cove, Coaster Harbor Island, R. I.; rivers Taunton, Mass., and Pawtucket, Providence, and Pawcatuck, R. I.; removal of wrecks.
	10	0	240.00		
J. H. Rostock, Newport, R. I	3	10	150.00	Newport, R. I.; harbors at Nantucket, and Edgartown, Mass., and Newport, R. I.; cove, Coaster Harbor Island, R. I.; rivers Pawtucket and Pawcatuck, R. I.	Harbors at Nantucket, Hyannis, Edgartown, Vineyard Haven, Wareham, and New Bedford, Mass., and Newport, Block Island, and Point Judith, R. I.; rivers Providence, Pawtucket, and Pawcatuck, R. I., and Taunton, Mass.; Menemsha Bight and Canapitsit Channel, Mass.: removal of wrecks; cove, Coaster Harbor Island, R. I.
	5	5	180.00		
Henry N. Babcock, Pelham Manor, N. Y.	12	0	250.00	New York City	Harbors at Clinton, New Haven, Milford, Bridgeport, Black Rock, Norwalk, Stamford, Five-Mile River, and Wilsons Point, Conn., and Greenport, Port Chester, Glen Cove, Echo Harbor, Flushing Bay, Port Jefferson Inlet, Larchmont, and Huntington, N. Y.; breakwaters at New Haven, Conn.; harbor of refuge, Duck Island Harbor, Conn.; rivers Connecticut, Mass. and Conn., Housatonic, Thames, and Mystic, Conn., and Patchogue, N. Y.; East Chester Creek and Browns Creek, N. Y.
H. B. Gorham, West Haven, Conn	12	0	175.00	New Haven, Conn	Harbors at Clinton, Milford, and New Haven Harbor and Breakwater, Conn.; harbor of refuge, Duck Island Harbor, Conn.; Housatonic River, Conn.
G. W. Kuehnle, New York City	7	0	200.00	New York City	New York Harbor, East River and Hell Gate, Buttermilk Channel, Newtown Creek, and Gowanus Bay, N. Y., and Raritan Bay, N. J.
	5	0	250.00		

Augustus Doerflinger, Brooklyn, N. Y.	7	0	200.00	Kingsbridge, N. Y	Harlem River, N. Y.
	5	0	250.00		
Charles G. Weir, New York City	7	0	200.00	New York City and Albany, N. Y.	Harbors at Saugerties and Rondout, N. Y.; Hudson River, and Wappinger Creek, N. Y.
	5	0	250.00		
Charles L. McMillan, Jersey City, N. J.	12	0	150.00	Brooklyn, N. Y.	Gowanus Bay, N. Y.
C. S. Kelsey, New York City	12	0	175.00	New York City	Keyport Harbor, Shoal Harbor, Compton Creek, and Mattawan Creek, N. J.; rivers Shrewsbury, Elizabeth, Rahway, South, Raritan, Passaic, and Manasquan, N. J.; Canarsie and Sheepshead bays, and Sumpawanus Inlet, N. Y., and Arthur Kill, N. Y. and N. J.; channel between Staten Island, N. Y., and New Jersey.
L. Y. Schermerhorn, Philadelphia, Pa.	1	0	250.00	Philadelphia, Pa	Harbor at Delaware Breakwater, Del.
Charles Truesdell, Philadelphia, Pa.	1	0	175.00	do	Harbors at Philadelphia, Pa., and Delaware Breakwater, Del.; ice harbors at Marcus Hook, Pa., and head of Delaware Bay; rivers Schuylkill, Pa., and Maurice and Delaware from Trenton to its mouth, including Rancocas River, N. J.; Alloway Creek, N. J.; pier near Lewes, Del.
	11	0	200.00		
Thomas M. Farrell, Philadelphia, Pa	10	15	150.00	do	Do.
Thomas Valentine, Philadelphia, Pa	2	0	150.00	do	Schuylkill River, Pa., and Delaware River.
A. Stierle, Wilmington, Del	12	0	175.00	Wilmington, Del	Harbors at Wilmington, Del., Cambridge, Md., and Onancock and Cape Charles City, Va.; ice harbor at New Castle, Del.; rivers Appoquinnimink and Smyrna, Del., and Choptank, Wicomico, Manokin, Chester, Elk, and North East, Md.; Fairlee Creek, Md.; inland waterway from Chincoteague Bay to Delaware Bay; examinations and surveys.
A. H. Fisher, Lewes, Del	1	27	150.00	Ocean View, Del	Inland waterway from Chincoteague Bay to Delaware Bay at or near Lewes, Del.
E. A. Gieseler, New York City, N. Y., and St. Augustine, Fla.	0	29	175.00	Rivers Chester and Wicomico, Md.; Savannah, Ga., and St. Augustine, Palatka, and Mayport, Fla.	Rivers Chester and Wicomico, Md., and St. Johns, Fla.; Savannah Harbor, Ga., and Cumberland Sound, Ga. and Fla.
	2	0	210.00		
	5	5	125.00 to 150.00		
George H. Phillips, Wilmington, Del	4	0	100.00	Wilmington, Del	Wilmington Harbor, Del.
N. H. Hutton, Baltimore, Md	12	0	150.00	Baltimore, Md	Baltimore Harbor, Md.
C. P. E. Burgwyn, Richmond, Va	5	0	250.00	Richmond, Va	James River, Va.
H. D. Whitcomb, Richmond, Va	7	0	250.00	do	Do.
William Proctor Smith, Gauley Bridge, W. Va.	4	16	200.00	Gauley River, W. Va	Gauley River, W. Va.
Addison M. Scott, Charleston, W. Va	12	0	300.00	Charleston, W. Va	Rivers Great Kanawha and Elk, W. Va.
C. K. McDermott, Charleston, W. Va	7	21	175.00	do	Great Kanawha River, W. Va.
John Moulton, Charleston, W. Va	0	5	150.00	do	Do.
W. S. Summers, Charleston, W. Va	0	24	150.00	do	Do.
Albert M. Campbell, Charleston, W. Va.	2	7	125.00	do	Do.
John B. Duncklee, Washington. D. C.	2	0	200.00	Washington, D. C	Rivers Rappahannock, Va., Anacostia, D. C., and Potomac; Urbana Creek, Va.
	2	0	175.00		
L. R. Grabill, Fredericksburg, Va	8	25	125.00	Washington, D. C., and lower Potomac River.	Aquia, Urbana, and Occoquan creeks, Va.; rivers York, Rappahannock, Mattaponi, and Pamunkey, Va., and Potomac; examinations and surveys.
Frank P. Kellogg, Washington, D. C.	2	0	125.00	Anacostia River, D. C., and Lynnhaven Bay, Va.	Examinations and surveys.
E. D. Hardy, Washington, D. C	3	5	100.00	Washington, D. C	Occoquan Creek and Aquia Creek, Va.; rivers York, Va., Anacostia, D. C., and Potomac.

Statement showing name and place of residence of each civilian engineer employed between July 1, 1891, and June 30, 1892, etc.—Continued.

Name and place of residence.	Time employed.		Compensation (per month).	Where employed.	Works on which employed.
	Mos.	*dys.*			
J. P. White, Norfolk, Va	12	0	$100.00	Norfolk, Petersburg, and Hampton, Va.; Chickahominy River, Va.	Norfolk Harbor and Hampton Creek andB ar, Va.; rivers Appomattox and Chickahominy, Va.
E. D. Thompson, Bound Brook, N. J	9	13	175.00	Wilmington, N. C	Rivers Cape Fear, Cape Fear (Northeast), Black, and Lockwood Folly, N. C.
Reid Whitford, Washington, N. C., and Georgetown, S. C.	12	0	175.00	Georgetown, S. C., and in the field	Georgetown Harbor, S. C.; rivers Congaree, Great Pedee, Little Pedee, Lumber, Santee, Waccamaw, Wateree, and Clark, S. C.; Mingo Creek, S. C.
Chas. Humphreys, Wayside, Md	12	0	150.00	Georgetown, S. C	Winyaw Bay, S. C.
W. H. Chadbourn, jr., Wilmington, N.C.	12	0	125.00	New Berne and Beaufort, N. C	Harbor at Beaufort, N. C.; waterways between New Berne and Beaufort, Beaufort Harbor and New River, and New River and Swansboro, N. C.; rivers New, Trent, Pamlico, Tar, and Neuse, N. C.; Contentnia Creek, N. C.
James P. Allen, Charleston, S. C	12	0	175.00	Charleston, S. C	Charleston Harbor and Wappoo Cut, S. C.; rivers Ashley, Salkahatchie, Edisto, and Beaufort, S. C.
Milnor P. Paret, Baltimore, Md	1	0	200.00	Savannah, Ga	Examinations and surveys; Brunswick Outer Bar, Ga.
F. C. Armstrong, St. Louis, Mo	9	0	166.66⅔	Savannah, Ga.; rivers Savannah, Altamaha, Oconee, and Ocmulgee, Ga.	Rivers Savannah, Altamaha, Oconee, and Ocmulgee, Ga.
Geo. W. Brown, Madison, Wis	2 5	0 0	166.66⅔ 175.00	Savannah, Ga., and Fernandina, Fla.; rivers Altamaha and Oconee, Ga.; examinations and surveys; removal of wrecks.	Cumberland Sound, Ga. and Fla.; rivers Altamaha and Oconee, Ga.; examinations and surveys; removal of wrecks.
Geo. D. Meigs, Wellsboro, Pa	1	18	166.66⅔	Savannah Harbor, Ga	Savannah Harbor, Ga.
Joseph Coulson, Lawrence, Mass	10	0	150.00	Savannah, Brunswick, and Darien, Ga., and Fernandina, Fla.; Jekyl Creek, and Savannah River, Ga.	Harbors at Savannah, Brunswick, and Darien, Ga.; Savannah River and Jekyl Creek, Ga., and Cumberland Sound, Ga. and Fla.; wrecks in Savannah and Altamaha rivers, Ga.
J. W. Sackett, St. Augustine, Fla	12	0	150.00 to 200.00	St. Augustine, Volusia, and Key West, Fla.; snag-boat Suwanee.	Volusia Bar and Tampa Bay, Fla.; harbors at Cedar Keys, Key West, and St. Augustine, Fla.; St. Johns River, Fla.
J. H. Bacon, St. Augustine, Fla	10	0	150.00	St. Augustine and Tampa, Fla.; snag-boat in Sarasota Bay and Oklawaha River, Fla.	Rivers St. Johns and Oklawaha, Fla.; Tampa Bay, channel of Charlotte Harbor and Pease Creek, Sarasota Bay, and St. Augustine Harbor, Fla.
E. L. Ingram, St. Augustine, Fla	4	9	125.00	St. Augustine, Fla	Key West Harbor and St. Johns River, Fla.
E. Burslem Thomson, Leesburg, Fla	1	15	90.00	St. Augustine, Fla	St. Johns River, Fla.
J. E. Turtle, Pittsfield, Mass	12	0	200.00	Pensacola Harbor, Fla.; rivers Choctawhatchee, Escambia, and Conecuh, Fla. and Ala.	Pensacola Harbor, Fla.; rivers Choctawhatchee, Escambia, and Conecuh, Fla. and Ala.
D. M. Andrews, Washington, Ga	12	0	150.00	Locks Nos. 1-5, Coosa River, Ala	Coosa River, Ga. and Ala., between Rome, Ga., and the East Tennessee, Virginia and Georgia Railroad bridge.
C. B. Percy, Mobile, Ala	12	0	150.00	Montgomery, Ala.; rivers Tallapoosa, Cahaba, and Alabama, Ala.	Rivers Alabama, Tallapoosa, and Cahaba, Ala.
Chas. Firth, Wetumka, Ala	11	0	200.00	Wetumka, Ala	Coosa River, Ga. and Ala., between Wetumka, Ala., and the East Tennessee, Virginia and Georgia Railroad bridge.

J. R. Carter, Birmingham, Ala	6	0	150.00	Lock No. 4 and Box Shoals, Coosa River, Ala.	Coosa River, Ga. and Ala., between Rome, Ga., and East Tennessee, Virginia and Georgia Railroad bridge.
Thomas Robinson, Andover, Mass	12	0	175.00	Rivers Flint, Ga., and Chattahoochee, Ga. and Ala.; Apalachicola River and Bay, Fla.	Rivers Chattahoochee, Ga. and Ala., Flint, Ga., and Apalachicola, Fla.; Apalachicola Bay, Fla.
H. Harding, Tuscaloosa, Ala	12	0	200.00	Tuscaloosa, Ala	Black Warrior River, Ala.
P. C. Boudousquie, Mobile, Ala	12	0	200.00	Mobile, Ala	Mobile Harbor, Ala.
Fred. Rettig, Mobile, Ala	12	0	200.00	Pearl River, Miss	Pearl River, Miss.
R. C. McCalla, jr., Tuscaloosa, Ala	12	0	150.00	Tuscaloosa, Ala	Black Warrior River, Ala.
C. Donovan, Port Eads, La	12	0	200.00	Port Eads, La	Examinations and surveys at South Pass, Mississippi River.
P. H. Thomson, New Orleans, La	0	23	125.00	New Orleans, La	Survey of Mermentau River, La.; Bayou Plaquemine, La.
	10	7	175.00		
J. L. Brownlee, New Orleans, La	12	0	150.00	Sabine Pass, Tex	Sabine Pass Harbor, Tex.
W. G. Price, New Orleans, La	6	17	200.00	Plaquemine, La	Bayou Plaquemine, La.
William Garvin, New Orleans, La	0	25	150.00	New Orleans, La	Do.
E. M. Hartrick, Galveston, Tex	12	0	250.00	Galveston, Tex	Galveston Harbor, Tex.
R. B. Talfor, Galveston, Tex	12	0	180.00	Houston, Tex.; Cedar Bayou, Tex	Buffalo and Cedar bayous, Tex.
Gerald Bagnall, Galveston, Tex	12	0	180.00	Trinity River and Galveston, Tex	Trinity River, Tex.; ship channel in Galveston Bay, Tex.
S. M. Wilcox, Galveston, Tex	1	0	130.00	Galveston, Tex	Galveston Harbor, Tex.
	4	0	140.00		
	7	0	150.00		
Horace M. Marshall, Vicksburg, Miss	12	0	200.00	Vicksburg, Miss.; rivers Red, La., and Yazoo, Miss.	Rivers Red, La., and Yazoo, Miss.
Thomas C. Thomas, Columbia, Mo	12	0	160.00	Vicksburg, Miss., and Red River, La.	Red River, La.
Alexander E. Kastl, Chillicothe, Ill	5	13	150.00	....do	Do.
John Ewens, Troy, N. Y	12	0	150.00	Vicksburg, Miss.; rivers Lower Mississippi and tributaries, Red, and Ouachita, Ark. and La., and Yazoo, Miss.; Sale and Murphy Outlet, La.	Water gauges on Mississippi River and tributaries; rivers Ouachita and Red, Ark. and La., and Yazoo, Miss.
J. R. Van Frank, Little Rock, Ark	11	12	150.00	Little Rock and Pine Bluff, Ark	Rivers White and Arkansas, Ark.
	0	18	125.00		
E. B. Summers, New York City	3	10	125.00	Pine Bluff, Ark	Arkansas River, Ark.
P. R. Van Frank, jr., Rollo, Mo	2	2½	100.00	Pine Bluff and Clarendon, Ark	Arkansas River, Ark.; examinations and surveys.
C. A. Langdon, Little Rock, Ark	8	7	150.00	Little Rock, Ark	Arkansas River, Ark.
Wm. Parkin, Little Rock, Ark	0	3	125.00	Fort Smith, Ark	Do.
D. M. Currie, St. Louis, Mo	12	0	200.00	St. Louis, Mo	Mississippi River between Ohio and Illinois rivers.
John O. Holman, St. Louis, Mo	12	0	150.00	Rush Tower, St. Louis Harbor, and Ste. Genevieve, Mo.	Mississippi River between Ohio and Illinois rivers; St. Louis Harbor, Mo.
Wm. S. Mitchell, Ferguson, Mo	12	0	150.00	Ste. Genevieve, Mo., and Alton, Ill.	Mississippi River between Ohio and Illinois rivers.
C. D. Lamb, St. Louis, Mo	12	0	150.00	Rush Tower, Mo., and at other points.	Do.
E. E. Furney, St. Louis, Mo	12	0	200.00	St. Louis, Mo	Removal of obstructions in Mississippi River.
Richard Klemm, St. Louis, Mo	5	4	150.00	Hamburg Island, Mississippi River; Kaskaskia River, Ill.	Mississippi River between Ohio and Illinois rivers; Kaskaskia River, Ill.
J. W. Beaman, Jefferson City, Mo	12	0	150.00	Jefferson City and rivers Osage and Gasconade, Mo.	Rivers Osage and Gasconade, Mo.
M. Meigs, Keokuk, Iowa	12	0	250.00	Des Moines Rapids Canal and Dry Dock, Iowa; Mississippi River between Keithsburg, Ill., and Montrose, Iowa, and between Des Moines Rapids, Iowa, and Illinois River.	Operating and care of canals; Mississippi River from Minneapolis, Minn., to Des Moines Rapids, Iowa, and from Des Moines Rapids, Iowa, to Illinois River.

Statement showing name and place of residence of each civilian engineer employed between July 1, 1891, and June 30, 1892, etc.—Continued.

Name and place of residence.	Time employed.		Compensation (per month).	Where employed.	Works on which employed.
	Mos.	*dys.*			
C. W. Durham, Rock Island, Ill	12	0	$200.00	Rock Island, Ill.; on snag boats; Mississippi River between Minneapolis, Minn., and Keithsburg, Ill.	Snag boats and dredge boats on Upper Mississippi River; Mississippi River between Minneapolis, Minn., and Des Moines Rapids, Iowa; Port Byron Harbor, Ill., and East Channel at Prairie du Chien, Wis.
A. L. Richards, Quincy, Ill., and Keokuk, Iowa.	12	0	125.00	Quincy, Ill.; Mississippi River between Des Moines Rapids, Iowa, and mouth of Illinois River.	Mississippi River from Des Moines Rapids, Iowa, to mouth of Illinois River.
A. O. Powell, St. Paul, Minn	12	0	180.00	St. Paul, Minn	Chippewa River, Wis., and reservoirs at head waters of Mississippi River; Mississippi River above Falls of St. Anthony, Minn.
R. Davenport, St. Paul, Minn	12	0	200.00	St. Paul, Minn., and on the works	Red River of the North, Minn., and Dak.
A. Johnson, St. Paul, Minn	12	0	180.00	do	Reservoirs at head waters of Mississippi River.
F. M. Towar, Sioux City, Iowa	12	0	175.00	St. Louis, Mo., Sioux City, Iowa, and in the field.	Missouri River from the Great Falls, Mont., to Sioux City, Iowa.
G. W. Wood, Sioux City, Iowa	12	0	160.00	Sioux City, Iowa, and in the field	Do.
H. C. Gould, Sioux City, Iowa	12	0	160.00	Fort Benton, Mont., and Sioux City, Iowa.	Fort Benton section of Rocky River in connection with improving Missouri River from the Great Falls, Mont., to Sioux City, Iowa.
J. S. Walker, Nashville, Tenn	12	0	200.00	Nashville, Tenn	Cumberland River.
C. A. Locke, Nashville, Tenn	3	0	150.00	Upper Tennessee River	Soddy Shoals, Tennessee River, Tenn.
J. L. Van Ornum, Racine, Wis	5	23	150.00	do	Survey of Tennessee River from Chattanooga to junction of Holston and French Broad rivers, Tenn.
S. W. Frescoln, Reading, Pa	3	0	150.00	do	Do.
J. W. Walker, Nashville, Tenn	6	20	150.00	Locks Nos. 1 and 2, Cumberland River, Tenn.	Cumberland River, Tenn.
B. B. Smith, Nashville, Tenn	5	15	150.00	Rivers Obion, Clinch, and French Broad, Tenn., and Cumberland.	Surveys and examinations.
D. L. Sublett, Chattanooga, Tenn	11	0	175.00	The Suck and Tumbling Shoals, Tennessee River, Tenn.	Tennessee River, Tenn. and Ala., below Chattanooga, Tenn.
	1	0	150.00		
Geo. W. Brown, Florence, Ala	5	0	166.66	Colbert Shoals, Tennessee River, Ala.	Do.
W. G. Williamson, Miltons Bluff, Ala	12	0	150.00	Elk River Shoals, Tennessee River, Ala.	Do.
C. A. Turrell, Riverton, Ala	8	22	150.00	Colbert Shoals, Tennessee River, Ala.	Do.
Paul Le Hardy, Chattanooga, Tenn	2	0	110.00	Chattanooga, Tenn	Do.
	4	0	125.00		
W. S. Winn, Chattanooga, Tenn	1	0	100.00	do	Do.
	5	0	125.00		
F. E. Fisher, Muscle Shoals Canal, Ala.	4	23	100.00	Muscle Shoals, Tennessee River, Ala	Do.
S. B. Williamson, Miltons Bluff, Ala	0	16	100.00	Colbert Shoals, Tennessee River, Ala.	Do.
W. A. McFarland, Muscle Shoals, Ala	12	0	175.00	Muscle Shoals Canal, Ala	Operating and care of Muscle Shoals Canal, Ala.; Tennessee River, below Chattanooga, Tenn.
William Martin, Pittsburg, Pa	12	0	200.00	Pittsburg, Pa	Operating and care of Davis Island Dam, Ohio River, Pa.
E. J. Carpenter, Cincinnati, Ohio	12	0	200.00	Cincinnati, Ohio	Ohio River dredges.
I. V. Hoag, jr., Cincinnati, Ohio	9	0	200.00	do	Removing rock obstruction from mouth of Licking River, Ky.
Philip Golay, Morgantown, W. Va	12	0	150.00	Morgantown, W. Va	Operating and care of locks and dams on Monongahela River.
J. W. Arras, Pittsburg, Pa	12	0	150.00	Pittsburg, Pa	Rivers Allegheny, Pa., and Ohio.

Edmund Moeser, Zanesville, Ohio	12	0	150.00	Zanesville, Ohio	Muskingum River, Ohio, and operating and care of locks and dams on the same.
R. R. Jones, Louisville, Ky	12	0	200.00	Louisville, Ky	Falls of Ohio River at Louisville, Ky., and Louisville and Portland Canal, Ky.
G. W. Shaw, Louisville, Ky	12	0	200.00	....do	Falls of the Ohio River at Louisville, Ky.; Indiana Chute Fall, Ohio River.
O. L. Petitdidier, Mount Carmel, Ill	12	0	175.00	Mount Carmel, Ill	Rivers Wabash, Ind. and Ill., and White, Ind.
Robert S. Burnett, Frankfort, Ky	12	0	200.00	Frankfort and Salvisa, Ky	Kentucky River, Ky., and operating and care of locks on the same.
John H. Westerfield, Beattyville, Ky	4	0	150.00	Beattyville, Ky	Kentucky River, Ky.
Benjamin F. Thomas, Louisa, Ky	12	0	200.00	Louisa, Ky., and Burning Springs, W. Va.	Rivers Guyandotte, Little Kanawha, and Buckhannon, W. Va., Licking, Ky., and Big Sandy; operating and care of locks on Little Kanawha River, W. Va.
John C. Thomas, Burning Springs, W. Va.	1	0	150.00	Burning Springs, W. Va	Little Kanawha River, W. Va.
B. O. Lermond, Bowling Green, Ky	12	0	150.00	Rochester and Bowling Green, Ky	Operating and care of locks on Green and Barren rivers, Ky.
J. J. Durage, Duluth, Minn	11	28	175.00	Duluth, Minn	Harbors at Grand Marais, Agate Bay, and Duluth, Minn., Superior Bay, St. Louis Bay, and Ashland, Wis., and Marquette, Mich.; harbor of refuge at Grand Marais, Mich.
J. H. Darling, Duluth, Minn	11	20	175.00	....do	Harbors at Duluth, Minn., and Superior Bay and St. Louis Bay, Wis.; survey at Marquette Harbor, Mich., St. Louis River, Minn., and Portage Lake, Mich.
F. L. Dever, Duluth, Minn	1	4	125.00	....do	Survey of St. Louis River, Minn.
G. A. Marr, Houghton, Mich	11	0	200.00	Houghton, Mich	Portage Lake and Lake Superior canals, Mich.
W. H. Hearding, Milwaukee, Wis	12	0	200.00	Milwaukee, Wis	Harbors at Milwaukee, Racine, and Kenosha, Wis., and Waukegan, Ill.
Samuel Whitney, Oshkosh, Wis	12	0	200.00	Oshkosh, Wis	Fox River, Wis.
G. A. M. Liljencrantz, Chicago, Ill	12	0	200.00	Chicago, Ill	Harbors at Chicago and Calumet, Ill.; rivers Illinois, Ill., and Calumet; Illinois and Mississippi Canal, Ill.
L. L. Wheeler, Milan, Ill	12	0	225.00	Milan, Ill	Illinois and Mississippi Canal, Ill.
Charles Francis, Milan, Ill	1	15	166.67	....do	Do.
W. M. Childs, Kampsville, Ill	4	0	175.00	Kampsville, Ill	Illinois River, Ill.
	0	28	187.50		
Clarence V. Brainard, Kampsville, Ill	4	28	125.00	....do	Do.
	7	2	150.00		
Frederick W. Lehnartz, Grand Rapids, Mich.	12	0	200.00	Grand Rapids, Mich	Improvements on eastern shore of Lake Michigan.
E. C. Dunbar, Detroit, Mich	12	0	150.00	Grand Rapids, Mich., and in the field	Do.
Fred. Morley, Ann Arbor, Mich	9	14	200.00	Grand River, Mich	Survey of Grand River below Grand Rapids, Mich.
L. M. Mann, Milwaukee, Wis	0	19	175.00	....do	Do.
E. S. Wheeler, Sault Ste. Marie, Mich.	3	0	250.00	Sault Ste. Marie, Mich	St. Marys River and Hay Lake Channel, Sault Ste. Marie River, Mich.
	9	0	300.00		
Joseph Ripley, Sault Ste. Marie, Mich.	11	0	175.00	....do	Do.
J. L. Callard, Sault Ste. Marie, Mich.	12	0	135.00	....do	St. Marys River, Mich.
B. H. Muehle, Detroit, Mich	12	0	175.00	Saginaw River and Detroit, Mich	Saginaw River, Mich.
H. Kallman, Detroit, Mich	10	0	175.00	St. Clair Flats Canal and Port Huron, Mich.	St. Clair Flats Canal and Black River at Port Huron and at its mouth, Mich.
Ernest Siegesmund, Buffalo, N. Y.	12	0	150.00	Buffalo, N. Y.	Harbors at Buffalo, Tonawanda, Wilson, Olcott, and Oak Orchard, N. Y.; Niagara River, N. Y.
Wm. Pierson Judson, Oswego, N. Y.	12	0	175.00	Oswego, N. Y.	Harbors at Charlotte, Pultneyville, Great Sodus Bay, Little Sodus Bay, Oswego, and Sacketts Harbor, N. Y.

Statement showing name and place of residence of each civilian engineer employed between July 1, 1891, and June 30, 1892, etc.—Continued.

Name and place of residence.	Time employed.		Compensation (per month).	Where employed.	Works on which employed.
	Mos.	*dys.*			
F. M. Barstow, Burlington, Vt	1	28	$175.00	Champlain, Chippewa Bay, Ticonderoga and Whitehall, N. Y., and Burlington and Vergennes, Vt.	Rivers Great Chazy and Ticonderoga, N. Y.; Narrows of Lake Champlain, N. Y. and Vt.; Otter Creek and Burlington Harbor, Vt.
	1	5	75.00		
L. J. Le Conte, Oakland, Cal	12	0	200.00	San Francisco, Cal	Oakland Harbor, Cal
F. C. Turner, Oakland, Cal	1	15	150.00	Redwood City and San Francisco, Cal	Redwood Creek, Cal.
H. L. Demeritt, Benicia, Cal	12	0	200.00	Rivers Sacramento and San Joaquin, Cal.	Rivers Sacramento and San Joaquin, Cal.
Wm. P. Smith, Eureka and San Francisco, Cal.	7	0	200.00	Humboldt Bay and San Francisco, Cal.	Humboldt Harbor and Bay, Cal.
James S. Polhemus, Empire City, Oregon	12	0	200.00	Coos Bay, Oregon	Rivers Coquille and Umpqua, Oregon; entrance to Coos Bay and harbor, Oregon.
Gwynn A. Lyell, Florence, Oregon	12	0	175.00	Newport and Florence, Oregon	Siuslaw River and Yaquina Bay, Oregon.
Philip G. Eastwick, Portland, Oregon	3	5	175.00	Portland, Oregon	Survey to connect Lakes Union, Washington, and Samamish with Puget Sound, Wash.
Eugene Ricksecker, Seattle, Wash	8	24	150.00	Newport, Oregon	Yaquina Bay, Oregon.
William Cuthbert, Portland, Oregon	12	0	150.00	Upper Columbia River	Columbia River from Rock Island Rapids to Priest Rapids, Wash., and survey of upper portion of said river.
W. H. Wood, Portland, Oregon	1	0	125.00	Tillamook Bay and Bar, Oregon	Tillamook Bay and Bar, Oregon.
John R. Savage, Portland, Oregon	12	0	125.00	Portland, Oreg., and on surveys	Examinations and surveys of Nehalem Bay, Coos Bay, Yaquina Bay, and Tillamook Bay and Bar, and of rivers Siuslaw and Coquille, Oregon.
G. B. Hegardt, Fort Stevens, Oregon	12	0	200.00	Fort Stevens, Oregon	Mouth of Columbia River, Oregon and Wash.
Geo. W. Freeman, Portland, Oregon	1	12	175.00	Portland, Oregon	Rivers Columbia and Lower Willamette, below Portland, Oregon.
Robert Warrack, Portland, Oregon	12	0	125.00	Portland, Oregon, and on Columbia River.	Do.
W. E. Morris, Portland, Oregnn	10	0	125.00	Cascade Locks and Portland, Oregon	Columbia River at Cascades, Oregon.
J. M. Clapp, Portland, Oregon	5	3	125.00	Portland, Oregon	Examination and surveys; Willamette River, above Portland, Oregon.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 110.

FORT POND BAY, NEW YORK.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Fort Pond Bay, Long Island, New York.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 7, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Lieut. Col. G. L. Gillespie, Corps of Engineers, dated November 9, 1892, of a preliminary examination of Fort Pond Bay at the east end of Long Island, New York, made by him in compliance with the provisions of the river and harbor act of July 13, 1892

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated November 9, 1892, with map, by Lieut. Col. G. L. Gillespie, Corps of Engineers, of the results of a preliminary examination of Fort Pond Bay, at the east end of Long Island, New York, made to comply with provisions of the river and harbor act approved July 13, 1892.

It is the opinion of Lieut. Col. Gillespie, concurred in by this office, that the locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF FORT POND BAY, AT THE EAST END OF LONG ISLAND, NEW YORK.

ENGINEER OFFICE, U. S. ARMY,
New York, N. Y., November 9, 1892.

GENERAL: I have the honor to submit the following report on a preliminary examination of Fort Pond Bay at the east end of Long Island, New York, in compliance with the requirements of the river and harbor act approved July 13, 1892.

The river and harbor act of August 11, 1888, made provision for a conditional survey of this bay, and the preliminary examination to ascertain whether the bay was worthy of improvement was assigned to Col. D. C. Houston, Corps of Engineers, copy of whose report may be found in the Annual Report of the Chief of Engineers, 1889, Part 1, pages 733–741.

The preliminary examination made by Col. Houston was complete and exhaustive, and it will be observed that the opinion is expressed in the report that "the harbor is not worthy of improvement in view of the present and prospective demands of commerce" (page 736). There will be found appended to that report copies of letters received by Col. Houston from the agents of the leading transatlantic steamship lines, and also from the president of the Long Island Railroad Company, in reply to letters addressed to them asking their views relative to the worthiness of the improvement of Fort Pond Harbor.

Since the examination provided for by the act of July 13, 1892, was confided to me by letter from the Chief of Engineers, July 19, 1892, a personal inspection of the bay has been made and letters have again been addressed to the agents of the principal steamship lines and to the president of the Long Island Railroad Company, asking if anything has lately transpired affecting ocean navigation which would lead them to change the views expressed by them on the same subject in 1888. Copies of the replies to these inquiries are submitted, and attention is respectfully invited to them.

FORT POND BAY AND ITS APPROACHES.

Fort Pond Bay Harbor is a small and comparatively deep harbor lying on the north side of Long Island 6 miles, approximately, west of Montauk Point, the eastern extremity of Long Island, and is 124 miles distant from Long Island City, opposite East Thirty-fourth street, New York City, 96 miles of which are measured along the Long Island Railroad and 28 miles along a proposed eastward extension.

The description of the bay and its shores given by Lieut. James C. Sanford, Corps of Engineers, in his report to Col. Houston (p. 734) is so full and accurate in its details that it only remains to emphasize certain of the facts stated. The two shores are composed of a coarse grade of sand and gravel, through which large bowlders are interspersed. By the action of the elements the slopes have been gradually degraded, causing the coarse material to descend progressively to and into the waters of the bay, fringing both margins with wide layers of bowlders extending outward to the 25-foot curve at mean low water. The 10-foot curve is uniformly about 1,000 feet from each shore.

Beyond the 25-foot curve the bottom of the bay is composed of mud, 3 feet thick, overlying hard sand. Northward of Rocky Point, the western headland, large bowlders are quite prominent, which reach, as Coast Survey charts show, to the 35-foot curve at mean low water.

The bay measures a little less than 1 square mile, and the available area exterior to the 30-foot curve, mean low water, measures 420 acres. It is well sheltered, being open to storms from northeast round by westward to northwest only.

A small wharf, located on the east side near the head of the bay, is the only one in the harbor, but as there is no commerce there is no shipping to be served.

The act under which this report is submitted states in effect that the object had in view by a survey of the bay is the preparation of "an estimate of the cost of an adequate breakwater."

The absence of any commerce at this point, the isolation of the bay, and its separation from any of the usual incentives to trade, all indicate that the proposed breakwater is intended, not for the protection of any existing local commerce, but for the promotion of some other interest.

The only important scheme for utilizing the bay commercially of which I have any knowledge is the one mentioned in the public press frequently during the past four years, which refers to transatlantic service. It has been stated that the plan of the promoters of such a scheme is to shorten transatlantic travel by running a line of fast steamers between Milford Haven, Wales, and Fort Pond Bay, Long Island, connecting at the latter point with the Long Island Railroad for quick transit to New York City, and substituting at the New York end 124 miles of railroad travel for 100 miles of ocean travel.

As the expediency of the adoption of this proposed route partly depends upon the possibility of ocean steamers reaching or departing from Fort Pond Harbor day and night throughout the year, without danger of serious detention, the physical character of the approaches is a proper subject of consideration.

It is not unreasonable to suppose that Long Island formerly extended eastwardly beyond its present limitations, and that its extreme eastern point, now Block Island, became detached by sea agencies assisted by land subsidence. The separating strait, 14 miles wide, has two shoal obstructions, which afford three passages from the ocean into Block Island Sound, with a maximum depth of 12 fathoms and a minimum depth of 4 fathoms at mean low water.

The western obstruction, called Phelps Ledge, lies $1\frac{3}{4}$ miles east of Montauk Point and has a least depth of 4 fathoms water, while the eastern, called Southwest Ledge, lies 4 miles west of Block Island, with a least depth of 5 fathoms water.

The water area north of the line connecting Montauk Point with Block Island and east of the entrance to Long Island Sound at the race, is called Block Island Sound.

Block Island, lying on the south side of the eastern border of Block Island Sound, has a length of 6 miles north and south and an average width of 2 miles east and west, and the distance between the northern edge of the shoal reef, which extends out from the extreme northern point of the island, and Point Judith, Rhode Island, on the mainland, is 10 miles, approximately.

This last channel is entirely free from obstruction, and has a maximum depth in the center of 22 fathoms, diminishing toward the two shores to 4 fathoms.

Block Island Sound must be entered and crossed by vessels making Fort Pond Bay from the sea. In clear weather it is probable that it would be habitually entered to the westward of Block Island, but in

thick weather it would doubtless be safer to enter the sound to the eastward of the island.

The point of divergence from the main ocean route would be in the vicinity of Nantucket Shoals Light-Ship, and the distance thence to Fort Pond Bay, whether by the eastward or westward of Block Island, would be 100 miles, approximately, and to the bar at Sandy Hook 180 miles, approximately.

The submerged obstructions which lie in the strait between Block Island and Montauk Point, and in Block Island Sound north of Shagwong Point, Long Island, may be easily discerned in clear weather, as they are marked by the usual aids to navigation, but in thick weather, when the islands and headlands are enveloped in dense banks of fog, navigation into Block Island Sound from the southward must necessarily be attended with many apprehensions, however numerous and perfect the fog signals may be, as not only must headlands and submerged reefs be avoided, but also small vessels, which largely frequent these waters for anchorage. These conditions affect the speed of vessels approaching Fort Pond Bay, if they do not menace the lives of passengers and endanger property, and will not be materially changed so long as fog prevails on the coast.

APPROACH TO NEW YORK CITY BY SANDY HOOK.

It has been alleged, among other reasons, that Fort Pond Bay should be improved by the General Government in the interest of rapid ocean transit, because there is not adequate water on the Sandy Hook Bar to accommodate modern vessels and steamers of large size and deep draft, and because fog prevails more at Sandy Hook than at Montauk Point. These charges will bear close examination.

(1) Since 1886 the deepening of the main ship channels through the lower bay, New York Harbor, has so far advanced that the depth of water on the bar at the southern entrance, by way of Gedney Channel, is to-day greater than 30 feet at mean low water, which is more than sufficient for any vessel or steamer afloat. In addition, Gedney Channel is clearly marked at night by an efficient system of electric lights, enabling vessels of any draft to pass in and out over the bar at night at any stage of the tide with nearly the same facility as in daylight, thereby destroying the terrors to mariners which have been ascribed to this channel and its bar.

The annual report of the Light-House Board to the Secretary of the Treasury for 1891, page 201, referring to Sandy Hook Bar, says:

> The monthly report of vessels passing the bar at night records as coming in the largest steamers plying to the port of New York, such as the *Etruria, City of Paris, Majestic, Fürst Bismarck, Umbria, La Champagne, Lahn, La Bourgogne, Germanic, Ems, Augusta Victoria, Teutonic,* etc.
>
> The *City of Paris* and *City of New York* are of 10,500 tons' register and the *Teutonic* and *Majestic* of 10,000 tons.
>
> By a coincidence the *Teutonic* seems to arrive off Sandy Hook at night, as by the known record she has *passed the bar at night coming in some six times.*

And on pages 205 and 206 of the same report it is stated that the number of vessels using Gedney Cut Channel (improved channel) between sunset and sunrise, for the fiscal year July 1, 1889, to June 30, 1890, was 569, 377 bound in and 192 bound out, and that the number for the fiscal year July 1, 1890, to June 30, 1891, was 767 vessels, 470 bound in and 297 bound out.

Unpublished reports to which I have had access record that during

the year 1891–'92, 785 vessels and steamers crossed the bar at night, 533 bound in and 252 bound out.

It is further stated in the report of 1891, page 201, that—

> The highest (monthly) work done by electric plant since its establishment was in November, 1890, when 101 vessels passed the bar, 67 coming in and 34 going out, or an average of 3.4 vessels each night.
>
> The best test of the plant is shown by the confidence with which pilots bring in from sea vessels of the largest displacement and length.

These records plainly show that the Sandy Hook Bar does not now cause detentions to vessels, day or night, on account of insufficient depth of water.

(2) Respecting the allegation that fog prevails more at Sandy Hook than in the vicinity of Montauk Point it must be admitted that the Government records for a series of years of the relative number of hours during which the fog signals have been operated, annually, at Sandy Hook and at Montauk Point, show, apparently, to the advantage of Montauk Point, but the difference is very slight, and too much importance should not be given to the records, for in the case of Sandy Hook the signals are required to be given so long as the lightship in advance of Gedney Channel Bar is obscured by fog, whereas at Montauk Point the keeper exercises his own discretion when to operate the signal.

In addition pilots, familiar with the two localities by constant cruising in adjacent waters, have been questioned on the subject and the general opinion is that fogs are more frequent and more dense at the eastern than at the western end of Long Island.

I am of the opinion that the usual conditions in regard to fogs differ inappreciably at those two points, and that all things considered it is reasonable to estimate that the time consumed in making Fort Pond Bay in thick weather, by a route east or west of Block Island, will be but little less, if any, than that consumed in making Sandy Hook Bar by the direct ocean route.

Four years have now elapsed since the question of using Fort Pond Bay as the western terminus of a new transatlantic route to New York City was first officially agitated, and the interval has been allowed to pass without any active steps resulting in the expenditure of money being taken to fit the site for any such occupancy. There is no evidence that the existing commercial condition of that harbor is soon to be changed, and until such evidence is given in a practical way, by the construction of steamers and by the extension of the existing railway system on Long Island to Fort Pond Bay, with capacious wharves to accommodate ocean steamers, it would seem premature to make surveys at this time with the view to the preparation of estimates of cost of construction of an adequate protecting breakwater.

I am therefore of the opinion that Fort Pond Bay is not worthy of improvement in view of present or prospective demands of commerce.

A small sketch, showing the location of and approaches to Fort Pond Bay, accompanies this report for its elucidation.

Very respectfully, your obedient servant,

G. L. GILLESPIE,
Lieutenant-Colonel of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

LETTER FROM MR. A. M. UNDERHILL, AGENT GUION LINE, LIVERPOOL STEAMERS.

NEW YORK, *August 4, 1892.*

DEAR SIR: Yours of 3d instant has attention.

The changes in transatlantic navigation simply confirm the views previously expressed.

Yours, respectfully,

A. M. UNDERHILL.

Lieut. Col. G. L. GILLESPIE,
Corps of Engineers, U. S. A.

LETTER FROM MESSRS. OELRICHS & CO., AGENTS NORDDEUTSCHER LLOYD STEAMSHIP COMPANY.

NEW YORK, *August 4, 1892.*

DEAR SIR: In reply to your valued favor of 3d instant, we beg leave to inform you that nothing has transpired to lead us to change our views as expressed in our letter to Col. Houston November 15, 1888, with regard to the eligibility of Fort Pond Harbor as the terminus of a line of fast ocean steamers.

Yours, very truly,

OELRICHS & CO.

Lieut. Col. G. L. GILLESPIE,
Corps of Engineers, U. S. A.

LETTER FROM MR. H. MAITLAND KERSEY, AGENT WHITE STAR LINE.

NEW YORK, *August 10, 1892.*

SIR: I beg to acknowledge receipt of your favor of the 3d instant, to which absence from town has prevented an earlier reply.

I have carefully read the letter of my predecessor, Mr. J. Bruce Ismay, dated November 27, 1888, and see no reason to differ in any particular from the views therein expressed.

I am, sir, yours, respectfully,

H. MAITLAND KERSEY.

Lieut. Col. G. L. GILLESPIE,
Corps of Engineers, U. S. A.

LETTER FROM MR. JAMES A. WRIGHT, JR., SECOND VICE-PRESIDENT INTERNATIONAL NAVIGATION COMPANY.

NEW YORK, *August 26, 1892.*

DEAR SIR: I have to acknowledge receipt of your favor of August 3 regarding Fort Pond Bay, Long Island. There is nothing that occurs to us in addition to what is contained in our previous letter of November 3, 1888, addressed to Col. D. C. Houston, and we have no reason to change the views as expressed by us in that letter.

Very respectfully,

JAMES A. WRIGHT, JR.,
Second Vice-President.

Lieut. Col. G. L. GILLESPIE,
Corps of Engineers, U. S. A.

LETTER FROM MR. VERNON H. BROWN, AGENT THE CUNARD STEAMSHIP COMPANY.

NEW YORK, *October 17, 1892.*

DEAR SIR: I duly received your esteemed favor of August 3 asking if any circumstances had occurred to change the views expressed in my letter of October 31, 1888, in regard to the eligibility of Fort Pond Harbor as the western terminus of a line of ocean steamers.

In reply I would say that I have carefully reread my letter above referred to, and beg to say that the situation is practically unchanged since the date of said letter.

Very respectfully, yours,

VERNON H. BROWN.

Lieut. Col. G. L. GILLESPIE,
Corps of Engineers, U. S. A.

LETTER FROM MR. D. A. NASH, SECRETARY BOARD OF COMMISSIONERS OF PILOTS.

NEW YORK, *August 9, 1892.*

DEAR SIR: In reply to the inquiry contained in your favor of 3d instant I have to state that we have no records relative to the frequency or duration of fogs.

I have, however, made inquiry amongst the pilots who cruise in the neighborhood of Nantucket, and they all say that the fogs are more frequent and more dense at the eastern end of Long Island than at the western.

Pilot boat *James Stafford No. 18* was built at Noank four years ago, and her captain, Pilot Joseph H. Nelson, was there during the months of May, June, July, and August, superintending her construction.

He states that the fogs there are much more frequent than at New York.

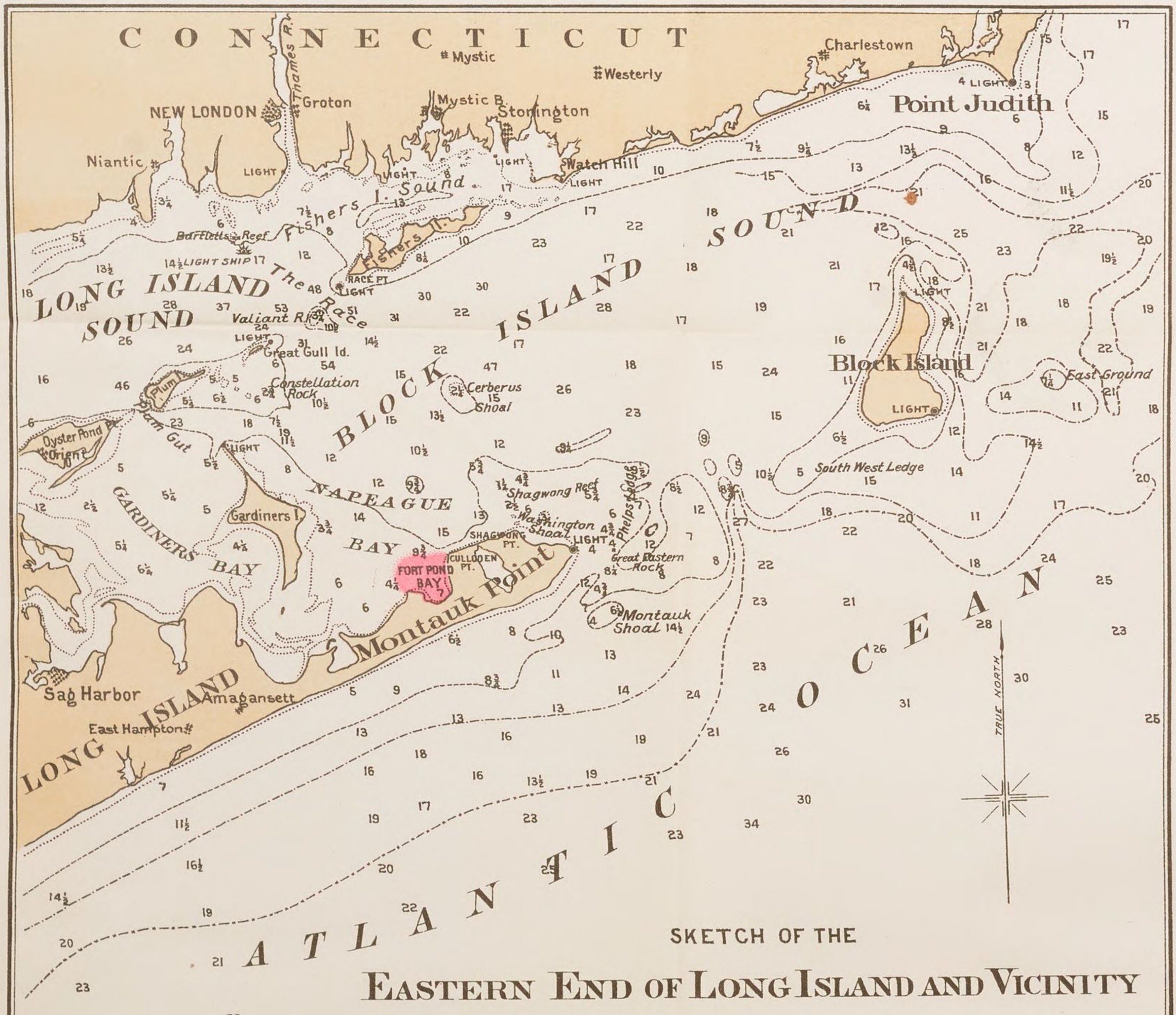
It was foggy there three out of five days.

For the board:

Yours, very respectfully,

D. A. NASH,
Secretary.

Lieut. Col. G. L. GILLESPIE,
Corps of Engineers, U. S. A.



SKETCH OF THE

EASTERN END OF LONG ISLAND AND VICINITY

SHOWING THE

APPROACHES TO FORT POND BAY.

SCALE, $\frac{1}{400,000}$

Statute Miles.

5 4 3 2 1 0 5 10 15 20 25 30

ENGINEER OFFICE, U.S. ARMY,
New York, N.Y., Nov. 9. 1892.
Sent to the Chief of Engineers, U.S. Army,
with report of this date.

G. L. Gillespie
LIEUT. COL. OF ENGINEERS, U.S.A.

NOTE.

Depths are expressed in fathoms.
The 3 fathom curve is shown thus :.....
" 10 " " " " " ----------
" 15 " " " " " -.-.-.-.-.-
" 20 " " " " " -.-.-.-.-.-

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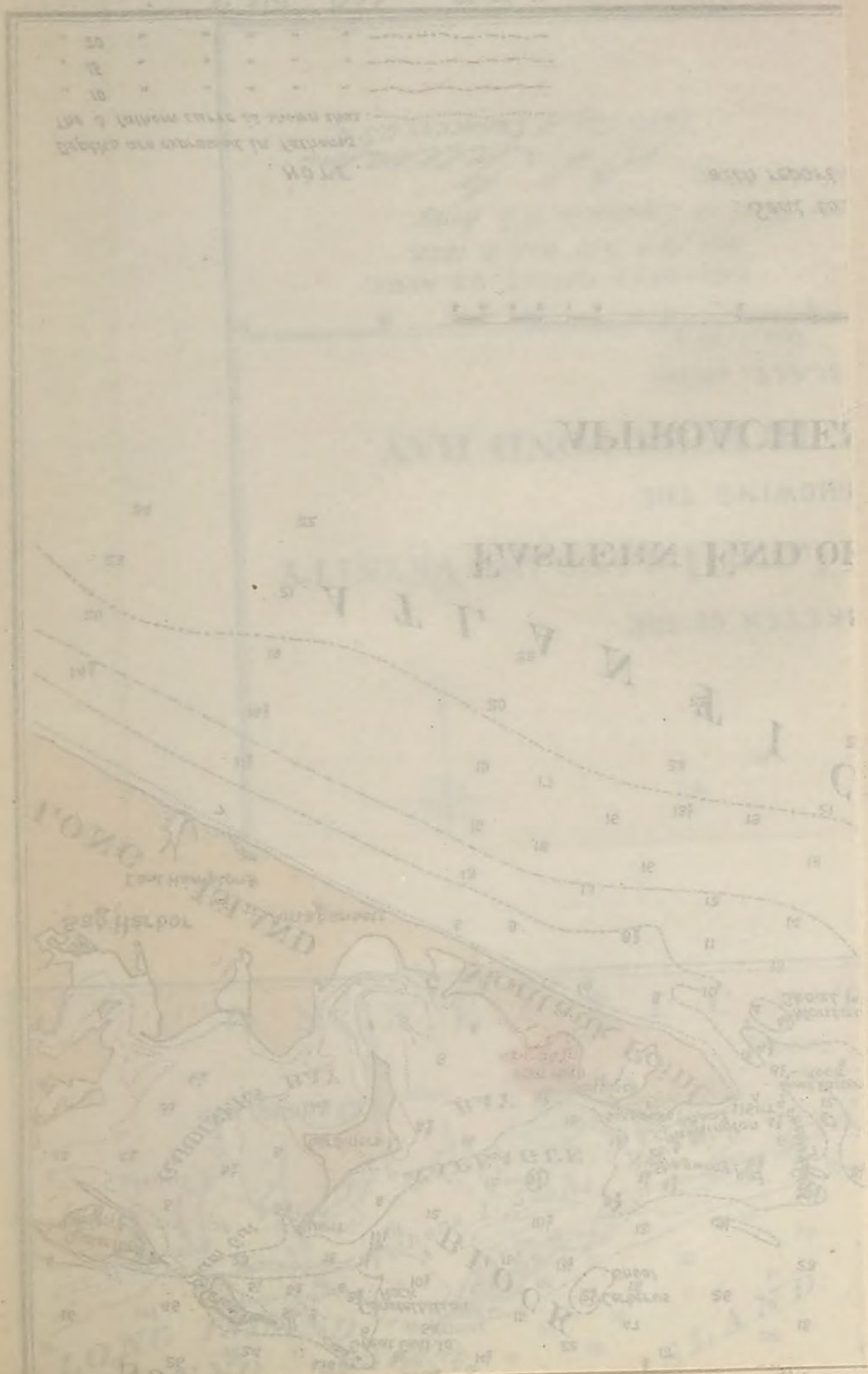

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 111.

SURVEY OF THE OHIO RIVER NEAR ELIZABETHTOWN, ILLINOIS.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the Ohio River at or near Elizabethtown, Ill.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Amos Stickney, Corps of Engineers, dated August 31, 1892, of a preliminary examination of the Ohio River at or near Elizabethtown, Ill., for the purpose of determining the most practicable method of improving the harbor at that place, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated August 31, 1892, by Maj. Amos Stickney, Corps of Engineers, of results of a preliminary examination of Ohio River at or near Elizabethtown, Ill., for the purpose of determining the most practicable method of improving the harbor at that place, made to comply with the terms of the river and harbor act approved July 13, 1892.

Maj. Stickney states that—

In view of the fact that the desired improvement would establish river communication for a town of about 800 inhabitants and improve general navigation by pro-

viding a channel wider and more nearly straight than the one now in use, and do away with a troublesome crossing, it is, in my opinion, an improvement worthy to be made by the General Government, provided that the cost is not unreasonable.

The views of Maj. Stickney are concurred in by the Division Engineer and by this office.

The survey necessary to prepare plan of improvement is estimated to cost $600.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF OHIO RIVER AT OR NEAR ELIZABETHTOWN, ILLINOIS, FOR THE PURPOSE OF DETERMINING THE MOST PRACTICABLE METHOD OF IMPROVING THE HARBOR AT THAT PLACE.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, August 31, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination of the Ohio River at or near Elizabethtown, Ill., for the purpose of determining the most practicable method of improving the harbor at that place, assigned to my charge by letter of the Chief of Engineers, U. S. Army, dated July 14, 1892. I examined the locality August 10. Elizabethtown is opposite the lower end of Hurricane Island. This island is about 4 miles long and divides the Ohio River into two channels, only one of which, that on the south side, is navigable at a low-water stage.

Previous to 1860, so I was informed by some of the old residents of Elizabethtown, the main channel of the river was on the north side of the island. It is said to have been unobstructed and better for navigation than the channel now used. By some change in the flow of the river above Hurricane Island, the bar above the island on the right-hand shore known as Half-Moon Bar, increased in size and extended down stream until it partially closed the entrance to the channel on the north side of the island, and the main channel changed to the south side of the island, As a consequence of this change the old channel has shoaled very much, and in time of low water boats can only approach Elizabethtown from below. This shoaling is still going on, and at the time of my visit there was a dry bar extending nearly across the channel just above the Elizabethtown landing, and I was informed that the river below the landing had shoaled to such an extent that it was feared that communication by boats would be entirely cut off.

The people of Elizabethtown desire to have the channel restored to the north side of the island. There are some important changes going on now in the channel at the head of the island. There is a bar known as Walkers Bar making out from the left-hand shore and extending down into the channel on the south side of the island, just as Half-Moon Bar extended down into the north channel. Walkers Bar, I am informed, has recently extended down stream quite rapidly, and at the time I passed that point the passage into the south channel was quite narrow, and the tow-head at the upper end of Hurricane Island was cutting. It would seem as if there were some uncertainty as to which side of the island the main body of water would be forced by the growth of the

bars above, and it is not at all improbable that by an artificial direction of the channel at a not unreasonable cost, the main channel could be restored to the north side of the island. Such restoration would not only be a matter of great importance to Elizabethtown in bringing the navigable channel back to the town, but would be beneficial to through navigation, especially for tows, as it would do away with the two crossings, one above and one below the island. This matter was discussed in a report of the late Lieut. Col. W. E. Merrill, Corps of Engineers, dated January 15, 1881, which can be found in the Annual Report of the Chief of Engineers for the year 1881, page 1922.

In the fall of 1880 a survey of the locality was made under Col. Merrill's direction. In his report Col. Merrill expressed considerable doubt as to the propriety of attempting to change the channel of the river back to the north side of the island, and considered that it would be a difficult and costly undertaking. I believe that the conditions have materially changed since the survey of 1880, especially in the extension of Walkers Bar down into the south channel, and that the forcing of the water back north of the island, would not now be so difficult as it would have been at the time of Col. Merrill's report. In view of the fact that the desired improvement would establish river communication for a town of about 800 inhabitants and improve general navigation by providing a channel wider and more nearly straight than the one now in use, and do away with a troublesome crossing, it is, in my opinion, an improvement worthy to be made by the General Government, provided that the cost is not unreasonable. To form an estimate of the cost will require further survey, a principal feature of which should be to ascertain the cause for the formation and growth of Half Moon Bar.

The cost of this survey is estimated at $600.

Very respectfully, your obedient servant,

AMOS STICKNEY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., September 2, 1892.

Respectfully forwarded to the office of the Chief of Engineers.

I concur in the opinion of the district engineer, and approve his estimate of the cost of a survey.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 112.

NORTH HERO HARBOR, VERMONT.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of North Hero Harbor, on Lake Champlain, Vermont.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. M. B. Adams, Corps of Engineers, dated September 3, 1892, of a preliminary examination of North Hero Harbor, on Lake Champlain, Vermont, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated September 3, 1892, by Maj. M. B. Adams, Corps of Engineers, of the preliminary examination of North Hero Harbor, on Lake Champlain, Vermont, made to comply with provisions of the river and harbor act approved July 13, 1892.

Maj. Adams states that the harbor is not worthy of improvement by the General Government, and his opinion is concurred in by the Division Engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF NORTH HERO HARBOR, ON LAKE CHAMPLAIN, VERMONT.

UNITED STATES ENGINEER OFFICE,
Burlington, Vt., September 3, 1892.

GENERAL: In compliance with your instructions of July 14, and as provided in river and harbor act of July 13, 1892, I have the honor to report the results of a preliminary examination made on the 17th and 18th ultimo at North Hero Harbor, Vermont, as follows:

North Hero Harbor is situated on the east side of North Hero Island about 3 miles from its southern extremity, and affords a well-sheltered harbor of limited area where most of the farm products of the island find shipment by water to market.

Those persons interested in this improvement desire that a greater low-water depth should be afforded in a channel leading to and from the landing immediately in front of the village of North Hero, so that the steamboats frequenting the harbor might reach the landing with certainty at all stages of the lake. As it is there are only 5 to 6 feet depths in some portions of the approaches, and the portion of the harbor where the landing or dock is situated is found to afford only a general depth of about 6 feet for several hundred feet offshore at the low-water stage of the lake.

Soundings were made very generally over the harbor at the examination and it was found that its northern portion around and in front of the point that shelters the harbor from the northward, known as Hibbards Point, affords better water than the portion in front of the village.

An old dock was seen to project a short distance from shore just within Hibbards Point, in front of which about 2 feet greater depths were found than at the village landing, and it was learned that this old dock or landing is used at times of extreme low water when the other can not be reached by the boats.

There is some inconvenience to the vlllagers, and to the summer visitors at the island, in being obliged to go around about a half or three-quarters of a mile, so as to reach the landing on Hibbards Point, and I am informed that the road leading to it from the village requires repairs very much; but, with the landing at the village for ordinary stages of the lake and the other as a resort for the boats in extreme low water, it would seem that all the necessities of the case were provided for reasonably well. * * * The improvement of either by the United States Government does not seem warrantable, or in the words of the law, is not worthy.

COMMERCIAL STATISTICS.

The proprietor of the village landing informs me that the business of the landing last year was as follows:

EXPORTS.

	Tons.
Onions	250
Beans	300
Oats	300
Hay	500
Barley	25
Buckwheat	50
Wool and apples	20
Hogs	10

	Tons.
Beef cattle, etc	30
Horses	25
Potatoes	150
Mutton and veal calves	10
Butter	5
Miscellaneous	25
Total	1,700

IMPORTS.

Coal	100
Lumber	10
Shingles	5
Farm supplies, etc	10
Flour, feed, etc	50
Miscellaneous	50
Total	225

Very respectfully, your obedient servant,

M. B. ADAMS,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. H. L. Abbot, Corps of Engineers, Division Engineer, Northeast Division.)

[First indorsement.]

NORTHEAST DIVISION, ENGINEER OFFICE,
New York, September 24, 1892.

Respectfully forwarded to the Chief of Engineers.

For the reasons stated by Maj. Adams, I concur with him in the opinion that this harbor is not worthy of improvement by the General Government.

HENRY L. ABBOT,
Colonel of Engineers, Bvt. Brig. Gen., U. S. A.,
Engineer Northeast Division.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 113.

PETERSBURG, VA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the harbor at Petersburg and the Appomattox River, Virginia.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Lieut. Edward Burr, Corps of Engineers, dated October 8, 1892, of a preliminary examination of the harbor at Petersburg and Appomattox River, Virginia, for diversion of waters to Old North Channel above city, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, dated October 8, 1892, by Lieut. Edward Burr, Corps of Engineers, of the results of preliminary examination of harbor at Petersburg and Appomattox River, for diversion of waters to Old North Channel above city, made to comply with provisions of the river and harbor act approved July 13, 1892.

I concur in the views expressed by the local and division engineers that the river is not worthy of improvement by the General Government in the manner mentioned in the act.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HARBOR AT PETERSBURG AND APPOMATTOX RIVER, VIRGINIA, FOR DIVERSION OF WATERS TO OLD NORTH CHANNEL ABOVE CITY.

UNITED STATES ENGINEER OFFICE,
Norfolk, Va., October 8, 1892.

GENERAL: I have the honor to transmit herewith a report of an examination and survey of harbor at Petersburg and Appomattox River, Virginia, for diversion of waters to Old North Channel above city, assigned to me by Department letter of July 14, 1892.

* * * * * * *

Very respectfully, your obedient servant,

EDW. BURR,
First Lieut., Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.
(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., October 11, 1892.

Respectfully submitted to the Chief of Engineers.

My opinion on this subject was given in some detail several years ago. (See pages 955, 956, Annual Report of Chief of Engineers, 1889, Part II.)

I concur in the conclusions of Lieut. Burr in his report of October 8, 1892. In view of the present as well as the prospective needs of commerce, so far as I can foresee them, I am unable to consider the diversion scheme for the Appomattox as required, and I therefore say in the words of the law that the stream is not worthy of improvement by the General Government in that way.

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

REPORT OF LIEUTENANT EDW. BURR, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Norfolk, Va., October 8, 1892.

GENERAL: In compliance with the provisions of the river and harbor act of July 13, 1892, I have the honor to submit the following report of an examination and survey of "harbor at Petersburg and Appomattox River, Virginia, for diversion of waters to Old North Channel above city," with estimate of cost.

This project has previously been the subject of two reports. The first was made in 1882 by Capt. Turtle, Corps of Engineers, U. S. Army, and is to be found in the Annual Report of the Chief of Engineers for 1882, Part I, page 907 *et seq.* The second was by Lieut. Fiebeger, Corps of Engineers, U. S. Army, and is given in the Annual Report of the Chief of Engineers, U. S. Army, for 1889, Part II, page 955 *et seq.* Both reports had the indorsement of Col. Craighill, Corps of Engineers, U. S. Army, and were based upon surveys made under the direction of Capt. Turtle in 1881–'82.

The Appomattox River may be divided into two parts having distinct and different characteristics. The lower navigable portion is a tidal stream having the characteristics common to all such streams in

the lowlands of this section, and extends from the mouth at City Point to Petersburg, a distance of 11¼ miles, 7⅝ miles of which have been under improvement. Above Petersburg the river is nontidal, and not navigable. Both sections are subject to sudden freshets, which arise in the upper part of the stream. These freshets bring down from the upper part of the stream large quantities of sand, which is deposited in the harbor of Petersburg, and as shoals in the channel where the velocity of the current is from any cause slackened. The wharves in the city of Petersburg and the lowlands bordering the river are subject to overflow during freshets.

To avert this shoaling of the harbor and channel and the flooding of the wharves with each recurring freshet is the object of the proposed diversion from the navigable channel of the flow from the upper river. It is proposed to convert the navigable channel into a purely tidal stream by carrying the nontidal flow in a separate artificial channel, diverting it from the present channel above Pocahontas Bridge and emptying it some 2¼ miles below into the old channel, whence it will find its way into the navigable channel at natural deep water at Point of Rocks.

In so far as concerns the flooding of the city wharves and the river bottom, this report has nothing to do. This flooding is due essentially to natural causes, and is one of the dangers to which all property located on the banks of freshet streams is subject. Such constructions as have been placed in the stream for its improvement and which rise only to the level of tidal high water, can have but little, if any, influence upon the height of a freshet which tops them from ten to fourteen feet. The project will therefore be considered only in its relation to the maintenance of the harbor and the navigable channel leading thereto.

A complete survey was made in 1881–'82 of the ground covered by this project. The reports of Capt. Turtle and Lieut. Fiebeger were based upon this survey, and no further survey will be needed for the purposes of this report, as the conditions remain unchanged. Such maps as may be necessary in the consideration of the subject will be found with the report of Lieut. Fiebeger referred to above.

From an engineering standpoint the project is practicable and offers no peculiar difficulties. It consists in the excavation of an artificial channel, the construction of a dam to direct the water into this channel, and an embankment to retain it therein, and the construction of bridges to carry wagon roads and railroads across the proposed new channel. The artificial channel naturally begins above Pocahontas Bridge, follows the low ground back of Pocahontas Hill and through the Roslyn Meadows and ends in the old channel at the head of Puddledock Cut. The embankment lies between the present and the proposed channel, being so placed as to permit of the economical use of the excavated material in its construction and to permit of a sufficient lateral spread of freshets over the adjacent low grounds. The location for the dam would be at Pocahontas Bridge.

Capt. Turtle mentions plans for both complete and partial closures of the river at the dam, the latter being such as to permit at will the passage through the dam of more or less water for the purpose of flushing the tidal harbor. As explained by him, the plan for partial closure is faulty. The passage of water at freshet stages would defeat the object of the improvement, and any gates placed low enough to pass water at ordinary stages would be speedily blocked by the deposition by freshets of sediment in the dead water above the dam, to be carried into the harbor by the opening of the gates. Complete closure is not only better, but simpler.

This is provided for by Lieut. Fiebeger, whose plan also provides for carrying off with safety a freshet equal to that of June, 1889, which exceeded by more than 6 feet any previous freshet. Since there have been no material changes in either the ground or freshet conditions subsequent to the date of Lieut. Fiebeger's report, his plans and estimates are accepted for this present report and reference is made to his report for their details.

* * * * * * *

The elements of this scheme are an artificial channel and a dam to divert a stream subject to sudden freshets with an embankment to subsequently restrain it, all of which are liable to material damage from washing and filling if left in an unfinished state.

To carry out this improvement economically and successfully the entire amount should be available before the work is commenced.

* * * * * * *

The Appomattox River has been under improvement by the Government since 1870. The plan of improvement calls for 12 feet depth at tidal high water. The amount expended by the Government to June 30, 1892, is $404,832.73; with this amount permanent improvement has been made for 6 miles of the $7\frac{5}{8}$ miles requiring attention, and temporary relief has been furnished to navigation by dredging shoals after freshets. The betterment of the channel for this 6 miles is permanent and except at one point—at Swans Island where permanent relief can only be had by a rectification of the channel—very little attention is necessary except to repair contraction works which are of timber and only semi-permanent. With the extension of these works over the entire $7\frac{5}{8}$ miles, it is thought that the channel will practically be self-maintaining except at the point mentioned.

* * * * * * *

The effect of the diversion project would be to convert the navigable portion of the river into a tidal basin with no freshet flow save that from its immediate surroundings and the back water from the diverted channel. Dredged channels in tidal streams are not always self-maintaining and probably would not be so on this stream although the amount of dredging in the channel would be less if the freshet water were diverted. The repairs necessary to the present contraction works and a small amount of dredging, besides the repairs to the diversion works, would be an annual expense. The estimated expense of maintaining the present channel is less than the interest at 3 per cent on the estimated cost of the diversion works, ignoring the subsequent annual expense of maintaining them and the tidal channel and contraction works.

Considering the present and prospective condition of the river and the relative costs of the two improvements, the project for diverting the waters of the Appomattox River to the old north channel above the city is not recommended for present adoption.

Reference has been made to the reports of Col. Craighill, Capt. Turtle, and Lieut. Fiebeger, mentioned above, for much of the data contained herein.

Very respectfully, your obedient servant,

EDW. BURR,
First Lieutenant, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 114.

WESTPORT, CONN.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Westport Harbor, Connecticut.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Col. D. C. Houston, Corps of Engineers, dated November 1, 1892, of a preliminary examination of Westport Harbor, Connecticut, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith a copy of report, dated November 1, 1892, by Col. D. C. Houston, Corps of Engineers, of the results of a preliminary examination of Westport Harbor, Connecticut, made to comply with requirements of the river and harbor act approved July 13, 1892.

This harbor is regarded by Col. Houston as worthy of improvement by the General Government, and I concur in his views. He estimates that the survey necessary to the preparation of plan and project for improvement proposed will cost $500.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF WESTPORT HARBOR, CONNECTICUT.

ENGINEER OFFICE, U. S. ARMY,
New York, N. Y., November 1, 1892.

GENERAL: I have the honor to submit the following report on preliminary examination of Westport Harbor, Connecticut, made in pursuance of the river and harbor act approved July 13, 1892.

This harbor comprises the portion of the Saugatuck River, Connecticut, below Westport. I made a report on this harbor, dated January 8, 1891, under the head of "preliminary examination of Saugatuck River, Connecticut," which was printed in the Annual Report of the Chief of Engineers for 1891, page 840.

I reported that the harbor was worthy of improvement, for the reasons stated in that report, a copy of which is forwarded herewith.*

* * * * * * *

The river and harbor act approved July 13, 1892, appropriated $7,000 for "improving the Saugatuck River, Connecticut, to be expended in the improvement of the natural channel." In addition to the matters above mentioned, it is found that the breakwater or sea wall on Cedar Point needs some repairs * * * which would come under the head of improving the natural channel, as the object of the wall is to prevent the wearing away of the point which protects the entrance to the harbor.

It is represented that the entrance to the harbor is shoaling by sand washing over the point, but the extent of this and the remedy, if any, can only be determined by a survey. It may probably be advisable to extend the breakwater beyond the point. There is also a ledge rock in the middle of the river opposite Stony Point, with a least depth of 3½ feet at mean low water. While there is sufficient depth on either side, the existence of the rock is a menace to navigation. The cost of removal will necessitate a detailed survey.

I am of opinion that this harbor is worthy of improvement by the General Government, and would therefore submit an estimate of $500 for a survey to determine what further improvements are necessary, and to make a project and estimate of cost.

No complete survey of this harbor has been made since 1872.

Very respectfully, your obedient servant,

D. C. HOUSTON,
Colonel, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

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* Omitted.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 115.

EVANSVILLE, IND.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the harbor at Evansville, Ind.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Amos Stickney, Corps of Engineers, dated August 31, 1892, of a preliminary examination of harbor at Evansville, Ind., made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the inclosed copy of report of August 31, 1892, by Maj. Amos Stickney, Corps of Engineers, of the results of preliminary examination of harbor at Evansville, Ind., made to comply with provisions of the river and harbor act approved July 13, 1892.

Maj. Stickney states that, in his opinion, the locality is worthy of improvement by the General Government, and his opinion is concurred in by the Division Engineer and by this office.

An estimate of $300 is submitted as the cost of the survey necessary to prepare plan and project for the improvement.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HARBOR AT EVANSVILLE, INDIANA.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, August 31, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination of the harbor at Evansville, Ind., assigned to my charge by letter of Chief of Engineers, U. S. Army, dated July 14, 1892. I made an examination of the harbor August 9, 1892, and by appointment met Messrs. John Gilbert and T. W. Venemann, the chairman and secretary of the Ohio River Commission for the State of Indiana, and others interested in the navigation of the river. Evansville, the second city in size in the State of Indiana, is situated on the right bank of the Ohio River in a very sharp bend. By the bending of the river a long peninsula is formed on the Kentucky side. Near the base of this peninsula, about 6 miles above Evansville, the neck of land measures something over a mile across from river to river. The banks of the river, on both sides of the neck, especially on the upper side, are being cut away by the current, and there are depressions in the land through which in floods the water of the river flows before the entire peninsula is submerged, though the submergence is general at a higher stage.

In 1878–'79 a dike was built by the United States extending out from the Kentucky shore to contract the low-water flow just above Evansville, and throw the channel against the Indiana shore. This object was accomplished by the dike, but as the public landing of Evansville is about 4,000 feet below the downstream end of the dike, the water has a chance to spread over towards the Kentucky shore, a tendency which is probably increased by the abruptness of the sharp bend to the left, which tends to cause the water to fall away from the right bank. The effect is that the channel immediately in front of the public landing is getting shoaler, and as the river gets down to a low stage, it is necessary to spar the wharf boats out some distance from the shore. The questions that are presented for consideration then, are (1) the possibility of the river cutting through the neck of land about 6 miles above Evansville leaving that city inland; (2) the lack of navigable depth of water in front of the public landing.

With regard to the first question the action of the river in cutting the banks, and eroding the surface, is very much slower than in similar cases on the lower Mississippi River, on account of the nature of the soil, and the lesser depth and volume of water; and as the neck of land across which the water flows in floods is something over a mile in width there is no probable immediate danger of a cut-off. The cutting, however, is going on year after year, and each year brings the possibility of a cut-off nearer to hand, and probably increases the cost of any work that might be undertaken to prevent the cut-off.

The grave results of such a disaster as a cut-off would be to the city

of Evansville render it advisable to keep the matter in view, and would, I think, justify taking immediate steps to keep the river in its present channel. This matter was discussed in two reports of the late Lieut. Col. W. E. Merrill, Corps of Engineers, to which I invite attention, and which can be found in the annual reports of the Chief of Engineers for 1888, page 1716, and for 1891, page 2382. Col. Merrill presented two plans for the protection of the peninsula. One contemplated the construction of an earthen levee to extend from the high ground at the base of the peninsula to the point opposite Evansville, a distance of about 6½ miles, at an estimated cost of from $305,000 to $317,000, estimates being made on two lines. The other plan was to purchase a strip of land down the peninsula and plant it with trees and bushes to break the force of the current across the peninsula. The estimate for the latter plan, with fencing, was $49,000. In neither of these plans was any provision made for preventing the cutting away of the river banks in the bends above and below the neck of the peninsula, the plans looking only to the prevention of erosion and lowering of the surface of the land, it being stated in Col. Merrill's report that the question of protecting the banks might be taken up at a later time.

In my opinion the holding of the banks is the vital point in any plan for preventing a cut-off. If the width of the neck of land can be maintained as it is there is but little probability of the river creating a main channel through the neck by gradual erosion of the surface. This opinion was also held by Col. Merrill. A cut-off is formed by the close approach of the two bends on the opposite sides of the neck of land when the difference in level of water surface, due to the slope of the river surface for the entire distance around the peninsula, causes a steep descent of water across the narrow neck. The water passing across the neck falls over the bank into the lower bend and rapidly cuts the bank away. The rapidity of this cutting depends upon the volume of water, depth of fall, and nature of the soil. As stated before, it is probable that the neck of the peninsula opposite Evansville has not yet approached a condition of great immediate danger, but it would be a difficult matter to determine just when a dangerous point might be reached, and it would certainly be wise to take the matter in hand before the danger approaches too closely. The prevention of the erosion of the surface of the land would certainly be desirable, but that is a matter which more directly affects the local property owners, and I believe they could easily and at small cost prevent much damage by adopting the plan suggested by Col. Merrill of planting trees and bushes upon a strip of land down the peninsula. Each property owner could devote a small area to this purpose and increase the value of his land.

The work that I would recommend would be the protection of the bank in the upper bend for a distance of about 15,000 feet by short sloping spur dikes placed at proper intervals. The protection of the lower bend is not of as much importance at present, and might be deferred. With regard to the second question, relating to the improvement of the river in front of the public landing at Evansville, I would say that this is a matter in which the navigation interests are more immediately interested. The desired improvement could, in my opinion, be best effected by the construction of a dike starting from a point opposite the public landing and extending from the Kentucky shore in a direct line across river to a point about 1,200 feet from the low-water line of the Indiana shore. In my opinion the locality is one worthy of improvement by the General Government for the reason that Evansville

is one of the most important cities on the lower Ohio River and has a very considerable river commerce, being the terminus of several lines of packets and an important point for through lines.

The preservation of the channel around the peninsula is a matter affecting the whole commerce of the river. This vicinity has been surveyed and the important changes that have taken place in the last five or six years can be determined by a resurvey of certain portions. I recommend that this survey be made, and estimate the cost at $300.

Very respectfully, your obedient servant,

AMOS STICKNEY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., September 2, 1892.

Respectfully forwarded to the office of the Chief of Engineers.

I concur in the opinion of the district engineer, that the harbor at Evansville, Ind., is worthy of improvement by the General Government, and recommend that the sum of $300 be allotted for the purposes of the requisite survey.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 116.

RACCOON RIVER, OHIO.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Raccoon River, Ohio.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from Maj. Amos Stickney, Corps of Engineers, dated September 2, 1892, of a preliminary examination of Raccoon River, Ohio, from its junction with the Ohio River for 50 miles of said Raccoon River, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit herewith the accompanying copy of report of September 2, 1892, by Maj. Amos Stickney, Corps of Engineers, of the results of the preliminary examination of Raccoon River, Ohio, from its junction with the Ohio River for 50 miles of said Raccoon River, provided for by the river and harbor act approved July 13, 1892.

The Raccoon River is reported by Maj. Stickney to be, in his opinion, not worthy of improvement by the General Government, and his opinion is concurred in by the Division Engineer and by this office.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY.
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF RACCOON RIVER, OHIO, FROM ITS JUNCTION WITH THE OHIO RIVER FOR 50 MILES OF SAID RACCOON RIVER.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, September 2, 1892.

GENERAL: I have the honor to submit the following report upon the preliminary examination of Raccoon River, Ohio, from its junction with the Ohio River for 50 miles of said Raccoon River, assigned to my charge by letter of the Chief of Engineers, U. S. Army, dated July 14, 1892. The examination was made by my assistant, First Lieut. Harry F. Hodges, Corps of Engineers, U. S. Army, a copy of whose report is transmitted herewith. The Raccoon River is a small stream that empties into the Ohio River just below Gallipolis, Ohio. It has a steep slope which averages nearly 1½ feet to the mile. There is no navigation of any kind upon the river at present, though some years ago flat boats, loaded with iron from two furnaces, and timber rafts were floated down during high water.

The fall of the water is now utilized at several dams to furnish power for mills that produce flour and lumber, of which there are ten in the 54 miles of river above the mouth. The maximum capacity of the flour mills is but 50 barrels per twenty-four hours. There is said to be considerable undeveloped mineral wealth in the neighboring country. Some veins of coal have been found, but not worked to any extent. The object of the examination, it is learned, was to ascertain the feasibility of establishing slack-water navigation. From the examination it would appear that there would be no very great difficulty in building locks and dams and the water supply would probably be sufficient for providing a navigable channel of 3 feet depth, but the cost of such an improvement would be excessive in comparison with the amount of commerce that might be developed. Lieut. Hodges states that the improvement would require the building of twelve locks and dams, the clearing of the channel, and the payment for damages to mill property. * * *

In view of the above facts I must concur in the opinion of Lieut. Hodges that the locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

AMOS STICKNEY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.
(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., September 10, 1892.

Respectfully forwarded to the Office of the Chief of Engineers.

I concur in the opinion of the district engineer that Raccoon River, Ohio, is not worthy of improvement by the General Government.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

REPORT OF LIEUTENANT HARRY F. HODGES, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, September 2, 1892.

SIR: I have the honor to make the following report on the preliminary examination of Raccoon River, Ohio.

The Raccoon River, or creek, rises in the southern part of Hocking County, Ohio, and flows in a tortuous but generally southerly course through Vinton and Gallia counties, emptying into the Ohio River 6 miles below Gallipolis, Ohio. Its total length is about 110 miles. The principal tributary is the Little Raccoon, flowing in from the west at a point 39 miles from the mouth. The main creek furnishes power for a number of mills.

The Baltimore and Ohio Railroad crosses it twice in the upper part of its course. The Hocking Valley Railroad strikes it at Hawkes Station, 54 miles from the mouth and follows it for about 13 miles to Vinton. From Vinton to the mouth of the creek the farmers and millers have no outlet for their produce except the wagon roads, which are very bad in the wet season.

The stream flows through a fertile bottom about 1 mile wide. The neighboring country is said to possess great undeveloped mineral wealth. At Adamsville, 28 miles from the mouth, two seams of coal were found while boring for oil. They are said to be 4 and 8 feet thick, and to lie at a depth of 40 and 83 feet, respectively. Near the mouth of the creek a 3-foot vein crops out of the hillsides at a much greater elevation, and is worked to a small extent for local use. A stream of natural gas and a spring of brine are now flowing from the old boring at Adamsville.

Forty or fifty years ago there was a considerable commerce on the creek. The Keystone and Buckeye furnaces sent their iron on flat boats down the Little and Big Raccoon and over the mill dams at high water. Timber rafts were also taken down in some quantities. There has never been any upstream navigation. At present there is no water traffic of any kind.

About twenty years ago a company was formed to improve the stream by a system of locks and dams. After doing a little preliminary work the company collapsed without building any locks. The present examination was asked with a view to establishing slack-water navigation for the lower 50 miles.

Hawkes Station, where the Hocking Valley Railroad strikes the stream, is 4 miles above the 50-mile point. As there is a good mill with the roller process at this place, it was probably intended to include it in the examination. Between there and the mouth of the creek there are ten mills, having an average fall of 5½ feet. They produce flour and lumber. At Vinton there is a wool factory as an adjunct to the mill. Two of the flour mills use the roller process, the remainder the stone process. All use turbines or the old wooden tub wheels. The maximum capacity is 50 barrels in twenty-four hours. The dams divide the creek into a series of ponds, the consecutive ones being separated by short reaches of flowing stream. In some cases the lower dam backs the water entirely to the one above. The banks of the pools are usually very steep and have a minimum height of about 8 feet above water. The width is very uniform, being 75 to 50 feet above Little Raccoon and 125 to 100 feet below, except for a short distance at the mouth. A channel of 3 feet in depth could readily be obtained through these pools with a small amount of clearing. At Davis Dam, 23 miles from the Ohio, there is a rocky ledge which causes a fall of about 5 feet. There are other less important rapids at various points, which would offer only slight obstacles to navigation by slack water.

Below the lowest mill there is a stretch of about 5 miles to the mouth, in which the stream has its natural flow, modified only by the remains of an old dam. In this reach it is rapid, narrow, and much obstructed by snags. It makes a sudden bend before emptying into the Ohio, and at its mouth is about 40 feet wide at low water.

The discharge is ample to supply locks. There is nothing in the conditions to render the establishment of slack water difficult.

Estimating from the heights of the dams and the length of the backwater, the fall in the lower 50 miles is found to be 71 feet to the stage of the Ohio at the time of the examination, when it showed 2.6 feet on the Gallipolis gauge. To overcome this would require, say, twelve locks of 6 feet lift.

* * * * * * *

The condition of the stream below the lowest dam, *i. e.*, from the mouth to Yellowtown, indicates that nothing but slack-water navigation will be of material benefit.

In view of the fact that there is no commerce on the river at present, it would not seem judicious to spend so large an amount to create a possible one. I must therefore report the locality as not worthy of improvement.

No survey is recommended.

Very respectfully, your obedient servant,

HARRY F. HODGES,
First Lieutenant of Engineers.

Maj. AMOS STICKNEY,
Corps of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 117.

CALUMET HARBOR, ON LAKE WINNEBAGO, WISCONSIN.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the harbor at Calumet on Lake Winnebago, Wisconsin.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. James F. Gregory, Corps of Engineers, dated August 4, 1892, of a preliminary examination of harbor at Calumet, on Lake Winnebago, Wisconsin, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated August 4, 1892, by Maj. James F. Gregory, Corps of Engineers, on preliminary examination of harbor at Calumet on Lake Winnebago, Wisconsin, made to comply with the requirements of the river and harbor act approved July 13, 1892.

It is the opinion of Maj. Gregory, concurred in by the Division Engineer and by this office, that the locality is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF HARBOR AT CALUMET, ON LAKE WINNEBAGO, WISCONSIN.

UNITED STATES ENGINEER OFFICE,
Milwaukee, Wis., August 4, 1892.

GENERAL: I have the honor to submit the following report upon a preliminary examination made by me on August 2, 1892, in pursuance of instructions contained in letter of Chief of Engineers, dated July 14, 1892, and to comply with requirement of item contained in section 6, river and harbor act of July 13, 1892, as follows: "Harbor at Calumet, on Lake Winnebago, Wisconsin."

This harbor is the mouth of Pique Creek, on the east shore of Lake Winnebago (pronounced Pike Creek), which empties into the lake at a point about one-third of the distance from the head to the foot. It is at times a refuge for the smallest class of light-draft vessels. The United States tug *Gen. G. K. Warren*, on which I went to the locality, drawing 4½ feet of water, grounded hard upon the expansive hard gravel bar outside the river mouth.

The only reason assigned for the desired improvement of the harbor appears to be that it might be used as a harbor of refuge by vessels on the route between Fond du Lac and Menasha or Neenah. There is now no steamer on this route, and there is no commerce to be benefited at the so-called harbor. In my opinion therefore it is not worthy of improvement by the General Government.

Very respectfully, your obedient servant,

JAMES F. GREGORY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., August 6, 1892.

Respectfully forwarded to the office of the Chief of Engineers.
I concur in the opinion of the district engineer.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 118.

MEXICO BAY, ON LAKE ONTARIO, NEW YORK.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Mexico Bay, on Lake Ontario, New York.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Capt. Dan C. Kingman, Corps of Engineers, dated November 11, 1892, of a preliminary examination of Mexico Bay, on Lake Ontario, New York, for a harbor of refuge, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report, dated November 11, 1892, by Capt. Dan C. Kingman, Corps of Engineers, upon preliminary examination of Mexico Bay, on Lake Ontario, New York, for a harbor of refuge, made to comply with provisions of the river and harbor act approved July 13, 1892.

Capt. Kingman reports that it is his opinion that the value of such a harbor is, to a certain extent, measured by the value of all the commerce on Lake Ontario, but that the question as to whether or not it ought to be built depends largely upon its cost. To make a reliable estimate of the cost to secure a proper harbor of refuge would be impossi-

ble without an accurate and detailed survey; and he estimates that the expense of such a survey would be $1,000.

The Division Engineer, Col. H. L. Abbot, Corps of Engineers, states that he does not regard this improvement as worthy of being undertaken by the General Government, in view of the present restrictions upon American commerce on Lake Ontario and the probable cost of any construction suitable for the object in view.

I concur in the opinion of the Division Engineer.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION FOR HARBOR OF REFUGE IN MEXICO BAY, ON LAKE ONTARIO, NEW YORK.

UNITED STATES ENGINEER OFFICE,
Oswego, N. Y., November 11, 1892.

GENERAL: I have the honor to submit the following report of a preliminary examination for a harbor of refuge in Mexico Bay, on Lake Ontario.

Mexico Bay, as indicated upon the chart and as known and recognized by those engaged in navigating the lake, comprises that portion of Lake Ontario which lies to the east of a straight line joining Stony Point with Nine Mile Point east of Oswego. Its shore line has a developed length of about 31 miles, the length of the chord being about 21 miles and the depth of the bay being about 13. From Oswego the general direction of the shore of Lake Ontario toward the east is northeast for about 18 miles, thence north for about 18 miles, thence northwest for about 4 miles to Stony Point. From Stony Point the shore line falls off toward the northeast for about 10 miles to the entrance of Henderson Bay. Between Oswego and Henderson Bay, a distance in a straight line of about 40 miles, or about 50 miles along the shore, there is no harbor or place of refuge for a vessel. The prevailing high winds and storms on Lake Ontario come almost invariably from the west or northwest, and it is therefore evident that any vessel which finds itself in the time of a storm eastward of the line joining Oswego Harbor with Stony Point will be forced to make headway against the storm in order to attain a harbor of refuge or to avoid being carried ashore.

Lake Ontario from its position is swept throughout its length by a westerly gale, and the waves near the eastern end of the lake in the time of storms attain a size and force that would scarcely be credited by one who has not actually seen them. And vessels therefore in the position which I have described, that is to say, to the eastward of the line joining Oswego with Stony Point, must in the time of storm have their steering gear and motive power in the best and most efficient condition in order to escape disaster. It would seem therefore that the value and importance of a harbor of refuge near the center of Mexico Bay would be measured only by the number and value of vessels that navigate the lake. Before making an examination of the locality however, I endeavored to obtain an expression of opinion as to the value and importance of this harbor of refuge from those who are expected to use it, and be benefited by it. Accordingly, I prepared a circular

letter addressed to the masters and owners of vessels engaged in navigation on Lake Ontario. The letter was as follows:

UNITED STATES ENGINEER OFFICE,
Oswego, N. Y., August 15, 1892.

To the masters and owners of vessels engaged in the navigation of Lake Ontario:

SIRS: Congress of the United States, by an act approved July 13, 1892, has directed a preliminary examination to be made for a harbor of refuge in Mexico Bay on Lake Ontario, and the honorable Secretary of War has directed me to make such an examination. The questions which naturally present themselves in connection with this subject are three:

(1) Is a harbor of refuge in Mexico Bay desirable or necessary?
(2) If so, what would be the most convenient and suitable location for it?
(3) What works are necessary for the construction of such a harbor and how much would they cost?

The first two questions particularly concern the owners and masters of vessels engaged in the navigation of the lake, and they could give me most important and valuable information on this subject. I should therefore esteem it an especial favor if you would, at your earliest convenience, give me in writing answers to the following questions:

(1) What vessels do you own, control, or command on Lake Ontario?
(2) What is their character and tonnage?
(3) In what trade are they engaged?
(4) How many trips do they make?
(5) Would a harbor of refuge in Mexico Bay be of value to you?
(6) How often have you had occasion to use such a harbor?
(7) How often have your vessels been exposed to loss or injury in consequence of the lack of such a harbor of refuge?
(8) At what particular point in the bay would a harbor of refuge be most likely to subserve the needs of commerce?
(9) Any remarks or suggestions which may occur to you as pertaining to the subject.

Very respectfully, yours,

DAN C. KINGMAN,
Captain of Engineers.

I caused some 50 or 60 copies of this letter to be placed in the hands of the persons to whom it was addressed and I received 10 letters in reply. Copies of these replies are transmitted herewith. Neither the number of replies nor their subject-matter seem to indicate a very lively interest on the part of the owners and masters of vessels engaged in navigating Lake Ontario in the subject of a harbor of refuge in Mexico Bay.

George Hall & Co., forwarders and coal dealers, Ogdensburg, N. Y., acknowledge the receipt of the circular and say, that they have been engaged in the forwarding business for twenty five years and do not look upon the subject with any great amount of favor; they think it possible that if there was a harbor of refuge in Mexico Bay they might take advantage of it, but doubt if the advantage would justify the expenditure of any considerable amount of money.

William A. Russell, commander of the steam tug *William L. Proctor*, engaged in towing on the lake, states that he makes about seventy trips a season between the St. Lawrence and Lake Ontario ports, and does not recall any case within the last five years in which he has needed a harbor of refuge in Mexico Bay. He thinks that a fog signal on Galloo Island would be better for him than a harbor of refuge.

O. Johnson, of Ogdensburg, master of the schooner *Bolivia*, makes between 35 and 40 round trips during the season, between Ogdensburg and Charlotte, has never had occasion to use a harbor of refuge in Mexico Bay, and never suffered any loss or injury in consequence of the lack of such a harbor. He thinks that deep water in the channel at the entrance of Great Sodus Bay* would be more value to him.

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* Dredging is now in progress to secure deep water in the channel at Great Sodus Bay.

C. W. Howard, master of the barge *Walter A. Sherman*, of Ogdensburg, has made 93 trips this season between Charlotte and St. Lawrence River points, has never had any occasion in his long experience as master of a sailing vessel to use a harbor of refuge in Mexico Bay; would rather have a fog whistle at Galioo Island.

Patrick Fleming, master of the steamer *Geo. D. Seymour*, of Ogdensburg, for seventeen years trading between ports of Oswego, Fair Haven, Charlotte, and St. Lawrence River ports, states that he has never in his long experience thought a harbor of refuge in Mexico Bay would be a good thing for him; and further, now that one is suggested to him he would be afraid to go there for shelter with a tow on account of the shallow water extending so far out into the lake; would rather have deep water in the channel at Great Sodus Bay, and a steam fog signal at Oswego and Galloo Island.

George Goble, of Oswego, N. Y., who owns and controls three schooners engaged in lake navigation, states that he has never had occasion to use a harbor of refuge at the foot of Lake Ontario, and never been exposed to loss or injury in consequence of the lack of such a harbor. He thinks, however, that a harbor of refuge would be of great value to tugs and barges that trade between Oswego and St. Lawrence River.

E. W. Rathbun & Co., of Oswego, N. Y., owns three steamboats and two tow barges engaged in navigating Lake Ontario, which vessels make about 100 trips each annually between American and Canadian ports; thinks that a harbor of refuge in Mexico Bay would be of very great value, states that his vessels have several times been exposed to loss or injury in consequence of the lack of such a harbor, and thinks that a mile east of Nine Mile Point would be the best place for it.

Wm. Gilbert, master of the steamer *Wm. Gilbert*, has owned vessels and been engaged in the navigation of the lake since 1848, now makes 30 or 40 trips a year, and says that a harbor of refuge would be very desirable and that he would use it very often.

W. D. Allen, of Oswego, N. Y., is interested in one schooner and one steam tug engaged in navigating Lake Ontario; thinks such a harbor might be of value to him; can recall but one occasion when he has suffered loss or injury in consequence of the lack of such a harbor, and thinks that Port Ontario, at the mouth of Salmon River, would be the best place for it.

Wm. A. Jenkins, master of the schooner *Fiat*, engaged in navigating Lake Ontario, says that he makes from 25 to 40 trips a year; would have used such a harbor from three to five times annually for the last twenty-five years; has lost two vessels in Mexico Bay and has been on the rocks there and met with much loss. He states further that there have been about 50 vessels lost in Mexico Bay in that number of years; gives the names of about 30 vessels that were lost there; thinks that the best place for a harbor would be at the mouth of Big Sandy Creek.

Taken altogether, this does not seem to be a very strong demand for a harbor of refuge; nevertheless it must be borne in mind that a circular letter is not the most successful way to secure a full and satisfactory reply. Many persons who received these letters were busy men or were men not in the habit of writing. If they could have been gotten together for an oral hearing the general weight of the testimony might have been different.

My own opinion is, as I have already stated, that the value of such a harbor is, to a certain extent, measured by the value of all the com-

merce on the lake. Hardly a storm occurs during the season of navigation that vessels bound for the St. Lawrence River do not take refuge in the harbor at Oswego, and they sometimes are obliged to remain there for two or three days. Vessels are very often held in the harbor of Oswego when their masters are in doubt about the weather, often remaining a day or two at a time when they might have ventured out if there had been a harbor to the east of Oswego which they could reach in case the wind should increase after they left port.

The lack of such a harbor might, and doubtless does, cause the loss of several trips every season to each vessel trading from American ports on Lake Ontario to the St. Lawrence River. This is a loss not easily measured, but it is evident that such a harbor would be valuable to commerce, even if the vessels seldom entered it.

The actual number of vessels lost each year is not so very great. Masters are now well acquainted with the dangers of this bay, and generally manage to avoid them at the cost of delay and lost trips.

Capt. Jenkins of the schooner *Fiat* states in his letter that the actual wrecks have averaged about one a year for the last fifty years. This corresponds with my own observation.

On the 26th of September of the present year the schooner *John Burt*, of Detroit, Mich., 348 tons burdened, bound for Oswego and loaded with corn, was carried past the entrance to Oswego Harbor in a gale which prevailed at the time, and being unable to return to the harbor or to make Stony Point, was carried ashore in Mexico Bay and totally destroyed; two lives were reported to have been lost.

At an earlier date, sometime during the summer, I remember of three barges breaking loose in a storm from the tug that was towing them when near the harbor of Oswego, and being carried ashore some four or five miles to the eastward. These barges, however, were afterward floated. Such barges are generally provided with small sails and when they break away from the tow can, if the wind favors, make their way to a harbor. A harbor of refuge in Mexico Bay would doubtless have been of value to them.

As to the best location for such a harbor, I am of the opinion after a personal examination of the locality, that the mouth of Salmon River at what is known as Port Ontario offers more advantages than any other point in the bay. Some work has been done at this locality in the past with a view of making a commercial harbor here. But the amount of work done was small, and as it was not maintained it has long since gone to ruin and but little trace of it is now visible.

Like all the streams that flow into this portion of Lake Ontario the mouth of Salmon River is obstructed by a sand bar. The current of the river in order to maintain its channel wages an unequal war with the storm waves of the lake. The resultant effect of this action has been to cause the mouth of the river to move northward and the stream to flow for perhaps a half mile parallel to and near the shore of the lake. Inside the bar the river has a depth of 14 to 15 feet, which would serve to indicate the size of channel that the current is able to maintain when undisturbed by wave action.

I am inclined to think that the current of this river could be utilized by means of parallel jetties so as to maintain a channel of navigable depth and width from the deep water in the lake to the deep water in the river, or that at least the current could be made to afford very material aid in the creation and maintenance of such a channel. Port Ontario is very near the middle point of the shore line of the bay, and

for that reason would be most easily reached by the vessels needing shelter.

Westward towards Nine Mile Point, the locality mentioned by some of those who wrote about a harbor of refuge in Mexico Bay, the lake has a rocky bottom and seen from the boat when the water is clear the whole bottom seems to be covered with large bowlders of several tons in weight. It is possible that these bowlders might be gathered up by a suitable derrick-boat and deposited in the proper depth of water in such a way as to form a rip-rap breakwater which would afford all the shelter needed or desired in the bay. And this might be the cheapest way to form a harbor.

Little Sandy Pond, a body of water of considerable size, about 5 or 6 miles north of Port Ontario and separated from the lake by a narrow spit, that is to say, by a sand spit which is narrow above water, has been mentioned as being the best place for a harbor of refuge, provided parallel jetties were used to form and maintain the channel across the sand spit from deep water in the lake to deep water in the pond. I am inclined to the opinion that the advantages that this locality might offer over Port Ontario would be more than offset by the increased cost necessary to secure and maintain the channel, since there would be no river current that could be utilized.

It is impossible without an accurate and somewhat detailed survey at these different localities to give a reliable estimate of the cost of works necessary to secure a proper harbor of refuge. The question as to whether a harbor of refuge ought or ought not to be built in Mexico Bay depends largely upon its cost. If its cost would not be too great it would be desirable and proper to build it. If its cost would be great, for example, if it would cost a million dollars, then this would be out of proportion to value of the service that it would be likely to render, and it ought not to be built.

I would therefore recommend that a survey be made in Mexico Bay with a view to determining the best locality for a harbor of refuge suitable for the largest vessels engaged in navigating Lake Ontario, and its probable cost. I estimate that such a survey would cost $1,000.

Respectfully submitted.

DAN C. KINGMAN,
Captain of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. H. L. Abbot, Corps of Engineers, Division Engineer, Northeast Division.)

[First indorsement.]

NORTHEAST DIVISION, ENGINEER OFFICE,
New York, November 12, 1892.

Respectfully forwarded to the Chief of Engineers, U. S. Army.

In view of the restrictions now existing upon American commerce on Lake Ontario, and of the lack of lively interest on the part of the owners and masters of vessels engaged in navigating the lake, as set forth by the accompanying papers, and of the large cost which an examination of the lake survey charts indicates must be incurred by any construction suitable for the object in view, I do not regard this harbor of refuge as worthy of being undertaken by the General Government.

HENRY L. ABBOT,
Colonel of Engineers, Bvt. Brig. Gen., U. S. A.,
Engineer, Northeast Division.

LETTER OF MR. PATRICK FLEMING.

OGDENSBURG, N. Y., *September 29, 1892.*

SIR: Answering your circular letter 15th ultimo, I have to say I am master of the steam tug *Geo. D. Seymour*, of Ogdensburg, N. Y., and have been in command of her seventeen years, trading between the ports of Oswego, Fair Haven, Sodus Point, and Charlotte, and Brockville, Ogdensburg, Montreal, and other points on St. Lawrence River and have been in this trade, all told, twenty-eight years, making about two trips a week during the season of navigation.

During this period of my sailing career I have generally had in tow four or five barges aggregating 3,000 tons or more capacity, to-wit: Barges *H. B.*, 1,000 tons; *Buckley*, 1,000 tons; *England, Ireland, Scotland,* and *Aid,* 800 tons each; *Kent,* 600 tons, and *Argo* 350 tons, besides others.

On many occasions I have been caught outside with a tow on Lake Ontario in very severe gales of wind with heavy seas rolling, compelling me to run for shelter, but at no time has the thought suggested itself to me that a harbor of refuge established in Mexico Bay would be a good thing for me, but now that one is suggested, I am free to say, so far as I am concerned, I should be afraid to go there for shelter, especially with a tow, as I would consider it very dangerous point to make owing to the shallow water extending so far out in the lake.

Many times when caught out between Oswego and Cape Vincent I would run either to Oswego or Stony Point, and consider these points so far as I am concerned more desirable than would a harbor at Mexico Bay. If you will permit me to offer a few suggestions which in my judgment would prove of more material benefit to lake commerce than the project of Mexico Bay, I would suggest a light-house at foot of Stony Island, as we have nothing to guide us in making this passage in stormy or thick weather.

A steam fog whistle at Oswego, Galloo Island and Cape Vincent, and a complete dredging out of Great Sodus Bay channel and an extension of a few hundred feet of west pier, would make that place the very best harbor of refuge to all vessels coming down or going up the lake, as the bay affords ample room for all sizes of vessels to move in after piers are entered, and many a vessel would make this place, owing to the easy access, it being protected on the west by Pultneyville Point breaking force of seas by time piers are reached.

In its present condition vessels fear to make it and run by and are therefore often at the mercy of the elements and go ashore, being unable to make Oswego and unable to haul up and reach Stony Passage.

Your letter was thrown aboard tug and did not come to my notice until a few days ago, hence delay in answering.

I am, respectfully, yours,

PATRICK FLEMING.

Capt. DAN C. KINGMAN,
United States Corps Engineer Office.

LETTER OF MR. C. W. HOWARD.

CHARLOTTE, *September 27, 1892.*

DEAR SIR: I am master of barge *Walter A. Sherman*, Ogdensburg; net, 493.58 tons; trade, carrying coal from Charlotte to Brockville, Ogdensburg, and Prescott. I have made ninety-three trips so far this season, and I have made like number seasons before. I have never had any occasion in my long experience as master of a sailing vessel to use or want to use a harbor in Mexico Bay.

I have traded a good many years from Toledo and Chicago to the foot of Lake Ontario and St. Lawrence River, but I have had quite a number occasions when a light on Six Town Point, the entrance to Henderson Bay, would be a great benefit to me, also fog whistle at Galloo Island and at Tibbitts Point.

Yours, respectfully,

C. W. HOWARD.

MR. DAN KINGMAN.

LETTER OF MR. GEO. HALL, PRESIDENT GEO. HALL COMPANY.

GEO. HALL COMPANY,
Ogdensburg, N. Y., September 14, 1892.

DEAR SIR: I have your circular, dated August 15, requesting our views in reference to a harbor of refuge in Mexico Bay on Lake Ontario.

We have been extensively engaged in the forwarding business for twenty-five

years, and do not look upon the project with any great amount of favor. It is possible if there was a harbor in Mexico Bay that we might take advantage of it.

Whether the advantage would justify the expenditure of any great amount of money, I feel very uncertain.

Yours truly,

GEO. HALL,
President.

Capt. DAN C. KINGMAN,
United States Engineer.

LETTER OF MR. O. JOHNSON.

OGDENSBURG, *September 5, 1892.*

(1) I command schooner *Bolivia.*
(2) Towing vessel, tonnage 336.
(3) In the coal trade between Ogdensburg and Charlotte.
(4) Between 35 and 40 round trips during the season.
(5) It might at some future time.
(6) Never have had occasion to use it.
(7) Never.
(8) Impossible for me to state.
(9) I have been navigating Lake Ontario for the last twenty-five years and never as yet have had occasion to use a harbor in Mexico Bay, but on several different occasions I have had use for such a harbor between Charlotte and Oswego.

There are several vessels in this line are too deep draft to get in Fair Haven, Sodus Point, or Charlotte when there is a big sea running, and I would recommend one between Charlotte and Oswego.

Capt. O. JOHNSON.

LETTER OF MR. W. A. RUSSELL.

In reply to your circular of August 15.

Question No. 1.—Command tug *Wm. L. Proctor.*
(2) Tug, 117 gross tons.
(3) Towing barges between Charlotte, Sodus, Oswego, and St. Lawrence River.
(4) About 70 trips per season.
(5) It might in extreme case, but such occasion has not occurred in the past five years.
(6) In the five years I have had charge of the tug *Wm. L. Proctor* can not remember of any time I had occasion to use such a harbor.
(7) At no time.
(8) Not well enough acquainted with the shore in Mexico Bay to express an opinion.
(9) Give us a fog signal at Galloo and Tibbitts in place of said harbor of refuge.

Yours truly,

W. A. RUSSELL.

DAN C. KINGMAN,
Captain of Engineers.

LETTER OF MR. WILLIAM GILBERT.

OSWEGO, N. Y., *August 25, 1892.*

SIRS: You ask me to give you my judgment as to a harbor of refuge in Mexico Bay, which I do with pleasure. As to the most proper place for the convenience of commerce, Big Sandy Creek is quite convenient when there is water enough to get over the bar.

Port Ontario is another place about the same as Sandy Creek. I have been in trade in both places. I would recommend opening a channel in Little Sandy Pond. There is a body of water 4 miles long, 1½ miles wide, deep water in the most part of it, being in the center of Mexico Bay. It would accommodate the commerce trade as well as any other point. A harbor of refuge means deep water and plenty of room. Open a channel in Little Sandy Pond and you have plenty of water and all the room you want; it would cost no more to open a channel there than it would to the other places. It is sandy bottom.

Big Sandy Creek and Port Ontario are limited for room inside, and it would be a great expense to make what room it would be necessary to have.

I own and command the steamer *Wm. Gilbert,* 51 tons; do freighting and towing from 30 to 40 trips across the lake. A harbor would be of value and desirable. I would use such a harbor very often, as I have had to get out up the bay the best I could, as these places could not be made only in fine weather and in the daytime. I never have had any loss or by being drove away. I have owned and been master of vessels since 1848, and navigated the port of the lake most of the time.

Yours respectfully,

Capt. WILLIAM GILBERT.

LETTER OF MR. T. DOBBIE.

OSWEGO, N. Y., *August 26, 1892.*

DEAR SIR: Your circular letter of August 15 was mislaid, but has just come to light.

Concerning first three questions, would answer (1) yes; (2) Port Ontario; (3) cribs and superstructure of the same general form as those at this port.

Of the next nine: (1) The schooner *Comanche* and tug *Charley Ferris;* (2) 306 and 27.05 net tons, respectively; (3) *Comanche,* grain, coal, and lumber; *Ferris* is engaged in towing; (4) *Comanche* comes here upper lake ports two or three times during season; *Ferris* tows across the lake about fifteen times during season; (5) it might be; (6) can think of but one; (8) at mouth Salmon River, Port Ontario.

Yours,

T. DOBBIE,
Per ALLEN.

Capt. DAN C. KINGMAN.

LETTER OF E. W. RATHBUN & CO.

E. W. RATHBUN & CO.,
MANUFACTURERS AND WHOLESALE LUMBER DEALERS,
Oswego, N. Y., August 23, 1892.

DEAR SIR: We have delayed yours of the 15th, awaiting a letter from our Capt. Gowan, of the steamer *Resolute,* who has been away here some time. He thinks the best place for the harbor of refuge would be just around the point east of what is known as Nine Mile Point, as it is most protected from west winds, and from the west and northwest is generally from where we get the most severe storms. Still, he says, a harbor at Mexico Point would be of much benefit, but that location would not be as desirable as the former place as the west and northwesterly winds would create more of a sea in Mexico Bay than just east of Nine Mile Point.

Capt. Dougherty, of the steamer *Reliance,* agrees with Capt. Gowan as to location and necessity, and, in fact, all our captains agree that a harbor at one of these points would be a most excellent thing. The Rathbun Company own several steamers and barges, which rarely ever navigate this lake, but the following steamers and barges do cross the lake:

Answering your question No. 1: Screw steamer *Resolute,* 325 tons; screw steamer *Reliance,* 225 tons; side-wheel passenger boat *Rocket,* 250 tons; tow-barge *Puritan,* 120 tons; tow-barge *Osiris,* 120 tons.

Answering question No. 3: The above boats are engaged in the lumber, grain, and coal trade, with the exception of the *Rocket,* which is solely a passenger boat; *Resolute* and *Reliance* carry passengers also.

Answering question No. 4: About one hundred trips each.

Answering question No. 5: A harbor of refuge in Mexico Bay, or east of Nine Mile Point, would be of great value; the latter place preferred.

Answering question No. 6: We can not give a definite answer to this, as most of our captains have been on these barges but a short time.

Answering question No. 7: Several times, but can not tell the exact number.

Answering question No. 8: We think immediately east of Nine Mile Point; still, Mexico Bay would not be objectionable.

Yours truly,

E. W. RATHBUN & CO.

Capt. DAN KINGMAN.

LETTER OF MR. GEORGE GOBLE.

OSWEGO, N. Y., *August 19, 1892.*

DEAR SIR: Your favor of the 15th ultimo at hand, and contents fully noted. I own in part and control the following-named vessels: *M. J. Cummings*, 314 tons; *West Side*, 308; and *Kate Kelley*, 267 tons.

The first-named vessel is a three-masted schooner and the last two are two-masted schooners. They are engaged, principally, in the grain trade on Lake Erie, Toledo to Buffalo, part of the time; iron ore, Lake Michigan to Lake Erie; and some grain, Lake Erie to Lake Ontario and River St. Lawrence. They usually make from 6 to 12 trips per season, depending very much if they are in the long or short trade. "Toledo to Buffalo is considered the short trade."

From what trade we have had of late years to Lake Ontario and River St. Lawrence, I can't see how a harbor of refuge in Mexico Bay would be of much service to the vessels that I control. None of the above-named vessels have had occasion to use a harbor of refuge at foot of Lake Ontario. Never been exposed to loss or injury at foot of Lake Ontario through lack of harbor of refuge in Mexico Bay. I am not prepared to say which would be the best point to build a harbor of refuge, but think from what I know of the foot of the lake, that Port Ontario would be the best point.

I think a harbor of refuge in Mexico Bay would be of great value to the tugs and tows of barges that trade between Oswego and the River St. Lawrence.

I remain, yours very truly,

GEORGE GOBLE.

DAN C. KINGMAN,
Captain of U. S. Corps of Engineers.

LETTER OF MR. WM. A. JENKINS.

WOODVILLE, JEFFERSON COUNTY, N. Y., *August 27, 1892.*

DEAR SIR: By the kindness of your agent at Sacketts Harbor I received one of your circulars of August 15, 1892. In answer to your first question I command and control the schooner *Fiat;* tonnage, Government register, is 36.36 tons; carries 70 net tons.

(3) Is employed in coasting trade and with Canada.
(4) When running the whole season makes 25 to 40 trips.
(5) Yes, sir; a harbor of refuge would help me.
(6) Average three to five times annually for twenty-five years.
(7) I have lost two at the mouth of Big Sandy Creek and have been on the rocks there and met with much loss.
(8) In the center of the bay at Big Sandy Creek.
(9) There has been about 50 vessels lost in Mexico Bay in about that number of years, and nearly one-half of them at or within 5 miles each way from the creek.

There has been two surveys of the mouth of Big Sandy Creek for a harbor of refuge, the last one about 1875, by Civil Engineer W. P. Judson, of Oswego, N. Y., who can give you valuable information on the subject. I have a map and report of Mr. Judson's survey and a petition signed by many captains asking for a harbor of refuge at the mouth of Big Sandy Creek, saying that it is the proper place for a harbor in Mexico Bay. The petition was made to send to Congress but our Member proved a cipher in the matter and I kept the petition for future use. I shall be glad to procure any information on the subject that I can, if you wish.

I am, sir, with respect, truly yours,

WM. A. JENKINS,
Master Schooner Fiat.

DAN KINGMAN,
Captain of Engineers.

The master of the *Madora*, with all who were lost 5 miles north of Big Sandy Creek, would have been saved with a harbor and light at Big Sandy Creek.

The *Ann of Hamilton*, *Victory*, *Wm. L. Marcy*, *Neptune*, *Huron*, *Oriental*, with one or two canal boats; *Sodus*, *Sampson*, *Christiana*, *Anna Morton*, *North Star*, *Sampson 2nd*; *Laurel*, *Wm. Elgin*, *Cortes*, *Nellie Theresa*, *Cherry Will*, steamer *E. A. Van Horn*, *Ariadne*, three men lost; *Ocean Wave*, *Minnie Francis*, barge, steamer *Mary Stewart*, *Delaware*, *Bangor*, *Trade*, as well as the lives of many sailors, would have been saved.

Commercially considered I have carried half a million Jefferson County money up to Oswego to pay for what was brought away, and as much more has been carried

by others in business here. It is a competing port to railroad freight, coal, fuel, lumber, and grain.

I have been told personally by many captains they would never attempt to enter Oswego Harbor, and went ashore as they did, had there been a harbor at Sandy Creek.

The money dumped in the Mississippi River and other rivers and harbors foolishly would make a harbor in Mexico Bay that would save double the money that it cost, and, as many sailors expressed it, it is only a question of time when the party in power will become informed of the true state of the matter and will erect a harbor, etc., at the mouth of Big Sandy Creek.

Hoping you will accept this letter with my best intentions, I remain the friend of navigation.

WM. A. JENKINS.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 119.

DUNKIRK HARBOR, NEW YORK.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Dunkirk Harbor, New York.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. E. H. Ruffner, Corps of Engineers, dated August 5, 1892, of a preliminary examination of Dunkirk Harbor, New York, with a view of securing 16 feet of water, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the accompanying copy of report of August 5, 1892, by Maj. E. H. Ruffner, Corps of Engineers, of the results of preliminary examination of Dunkirk Harbor, New York, with a view of securing 16 feet of water, made to comply with provisions of the river and harbor act approved July 13, 1892.

Maj. Ruffner states that he deems Dunkirk Harbor worthy of improvement by the General Government.

The Division Engineer, in transmitting this report of Maj. Ruffner to this office, remarks that he does not consider the harbor of Dunkirk

worthy of improvement by the General Government to the extent of securing 16 feet of water, and I concur in his views.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF DUNKIRK HARBOR, NEW YORK, WITH A VIEW OF SECURING SIXTEEN FEET OF WATER.

UNITED STATES ENGINEER OFFICE,
Buffalo, N. Y., August 5, 1892.

GENERAL: Inclosed please find preliminary examination report, Dunkirk Harbor, with a view to securing 16 feet water (in duplicate), with sixteen letters from merchants and manufacturers, relative to the subject.

Very respectfully, your obedient servant,

E. H. RUFFNER,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Henry L. Abbot, Corps of Engineers, Division Engineer, Northeast Division.)

[First indorsement.]

NORTHEAST DIVISION, ENGINEER OFFICE,
New York, August 20, 1892.

Respectfully forwarded to the Chief of Engineers, U. S. Army.

During my inspection of this district, just completed, I carefully examined the harbor of Dunkirk in company with the local engineer. I do not consider it worthy of improvement by the General Government to the extent of securing 16 feet of water.

Even for a depth of 13 feet the locality has proved to be far from favorable by reason of its position much exposed to severe storms, to the lack of any stream or internal water area in which natural shelter may be obtained, and to the underlying rock which greatly increases the cost of preparing artificial harbor room. I concur with Maj. Ruffner in thinking that, even if the harbor be improved to 16 feet, "the proximity to Buffalo on one side and Erie on the other must be overcome by offering equal inducements at Dunkirk," and also that "at present they (coal railroads) would not in all probability entertain the idea of using the harbor." I am, however, also of the opinion that such facilities as are contemplated by the suggested deep harbor (an area of less than 3 acres of internal basin blasted in rock in situ, and with a difficult approach in prevailing storms) would not meet these conditions, so essential to success in making it a valuable deep-water port.

As the last survey was made more than twenty years ago, I think it desirable that a new one should be made to determine whether the present harbor can be maintained at a depth of 13 feet at any reasonable expense (it is now stated to have about 11 feet), but I am satisfied that no greater depth should be attempted unless in the future the in-

crease of lake commerce should show that existing harbors, having far greater natural advantages than Dunkirk, are inadequate to meet the needs of navigation.

HENRY L. ABBOT,
Colonel of Engineers, Bvt. Brig. Gen., U. S. A.,
Engineer, Northeast Division.

REPORT OF MAJOR E. H. RUFFNER, CORPS OF ENGINEERS.

The harbor of Dunkirk, N. Y., has been an object of appropriations for its improvement since 1827. Since 1866 a large sum of money has been expended upon it, and it has been the subject of many reports, and many opinions have been expressed in reference to it. A concise statement of the salient points of all these should be given as a preliminary to any description of the harbor as it is at present. References will be given to the reports of the Chief of Engineers by year, part, and page.

The first appropriation was made in 1827, and from that time until 1838 there were in all eleven items, amounting to $88,446.43. With this money there had been built, in accordance with the original plan, 2,125 feet of an outer breakwater and 1,400 feet of a western pier, besides 300 feet of a detached breakwater. In 1848 the main breakwater was demolished. Between 1848 and 1870 some portions of the work were renewed, and others repaired (1883, part 2, p. 1927).

Prior to 1867 there had been expended in forty years $123,446.43. In 1867 an appropriation of $100,000 was made for this harbor and its reconstruction begun. The west pier was rebuilt and a new breakwater begun. In 1870 the Chief of Engineers appointed a board of three engineer officers to prepare a plan for the improvement of this harbor. This board reported (1871, p. 214) that—

> In view of the fact that portions of the harbor works at Dunkirk, owing to their peculiarly exposed location, have been repeatedly carried away, it is deemed prudent not only to give to any future work a greater cross section than has heretofore obtained, but also to take advantage of the partial protection afforded by the reef and the débris of the old works in breaking the force of the wave by placing the new work farther to the south.

The new breakwater was intended to be about 2,300 feet long and terminate westwardly at the 12-foot curve of the channel. A branch 560 feet long and parallel to the channel was proposed to the north of the west end of the breakwater, "contingent on developments demonstrating its necessity." A height of 8 feet above local low-water level was to be given the superstructure.

> The Board indicates upon its sketch a channel of 13 feet depth and 170 feet wide leading to the anchorage.
>
> It is possible, but barely so, that an east pier may be necessary for the complete protection of the anchorage. A site is therefore indicated on the sketch, but the Board considers the contingency so remote as not to render it necessary to incorporate this item in its estimate for proposed works.

The survey of the harbor made in 1866 upon which the estimates were based that were made by this Board proved to be in error, and Lieut. Col. Harwood (in 1872, p. 247) and Lieut. Col. Blunt (1875, part 1, p. 317) both called attention to the necessity of a revision of the estimates, though no change was suggested in the plan. In 1877 (part 2, p. 971) the officer in charge reports that—

> The channel is now believed to be in good condition, with a width of 170 feet and a low-water depth of 13 feet. The breakwater is now 940 feet long, and its extension by 250 feet is under contract.

At this time there had been appropriated and allotted, in ten items, the sum of $313,132.95 since 1867, and the harbor was in use, though the breakwater would (with the extension) lack 1,110 feet of its proposed length.

The commercial statistics of the harbor showed during these ten years the following as the number of vessels entering and clearing the harbor for each year:

1867	679
1869	281
1870	191
1872	93
1873	105
1874	84
1875	222
1876	120

In 1879 (part 2, p. 1716) Maj. McFarland says:

> The length of the breakwater proposed in 1870 by the Board of Engineers was 2,860 feet, of which the part, 560 feet long, beginning at the Dumb Beacon and running along the east side of the channel to the west end of the main arm of the breakwater, was not to be built until it was shown to be necessary. Of the main arm, which was to be 2,300 feet in length, 1,191 feet have been built, leaving 1,109 feet yet to be built. The port has not developed, however, as it was expected to do when the report of the Board of Engineers (of 1870) was made; and I agree with the opinion of the engineer who had charge of this work in 1875–'76,–'77, that it is not expedient to extend the breakwater more than 510 feet farther, or to the angle.
>
> Balance asked to complete this, $262,000.

It should be noted here that while attention is not closely called to the fact that only three-sevenths of the protective works were then built and the harbor was not safe for winds veering from north to northeast, no mention at all is made of the depression then existing in the navigation of the lakes. The entrances and clearances at Buffalo for certain preceding years were:

1872	10,105
1873	10,547
1874	9,860
1875	6,167
1876	6,333
1877	4,772

There would seem to be no reason for expecting a commercial growth at Dunkirk during this period. For the first time since the report of the Board of Engineers in 1870, there appears in 1883 (part 2, p. 1927) a recommendation of the officer in charge that—

> In consideration of the exposed condition of the entrance from both wind and waves between points west, northwest, and around to northeast, the narrowness of the channel and its jutting banks of submerged rock on either side of it, I would recommend that the 560-foot section (from the breakwater toward the light-house) should be constructed in order to ameliorate the condition of this somewhat dangerous entrance. The benefits to the commerce of this harbor have never been fully realized. The class of vessels engaged in the lake commerce is much larger, with increased draft, since the improvement of this harbor was last planned, and while the accommodations it offered no doubt sufficed for such vessels as were on the lake a few years ago, they are inadequate to the wants of the larger class of vessels of the present day; besides, unfortunately for its improvement, it can not be made to accommodate the larger vessels except at enormous expense, since any depth more than 12.5 feet throughout the entire inclosed area of the harbor must be gained by excavating its solid rock bed.

Two years later a new officer in charge says (1885, part 3, p. 2246):

> Very extensive rock excavation and dredging is required at this harbor to make it fulfill the requirements of the present commerce of the lakes on a scale commensu-

rate with the plan of the Board of Engineers of 1870. A 16-foot depth of channel and harbor would be required for the present class of vessels, whereas rock bottom occurs at 12.5 feet depth. The extension of the breakwater 560 feet parallel to the channel should be built at once.

In 1883 an extension of 150 feet was made to the breakwater, raising its length to 1,341 feet in all. No further extension to this has been made since, subsequent work consisting of repairs and in maintenance of the channel.

In 1888 (part 3, p. 2024) the officer in charge says:

No work has been done in the channel since 1886, when over 23,000 cubic yards of material were removed; depth of 13 feet thus obtained. The prevailing wind along this part of the shore of Lake Erie is from the southwest. Under its influence much material is transported along the shore of the lake, and that which comes as far as Dunkirk is there deposited. This action is clearly seen in the changes of the shore line adjacent to the west pier. Since this harbor was assigned to my charge this line had moved about 150 feet toward the beacon at the time of my last visit, in an interval of sixteen months. Inside of the west pier the shoaling goes on rapidly.

Between 1876 and 1892 there have been appropriated and allotted for the harbor as follows:

1879, allotted	$2,500
1880, appropriated	10,000
1884, appropriated	10,000
1886, appropriated	20,000
1888, appropriated	15,000
1890, appropriated	20,000
1892, appropriated	20,000
Total	97,500

This sum represents the maintenance of the harbor and its channel, as above described, for the period 1879 to 1894, inclusive—fifteen years.

Arrivals and departures of vessels are as follows:

1878	118
1879	107
1880	110
1881	80
1882	118
1884	40
1885	39
1886	18
1887	32
1888	32
1889	68
1890	100
1891	96

This history may be summarized as follows: The attempt to form a protected harbor, with a 13-foot channel to it, has only partially succeeded. Only three-sevenths of the outlying breakwaters were ever constructed and maintained.

As a consequence piers could not safely be built within the harbor, nor could vessels lie there in all storms.

For this reason and because commerce had outgrown a 13-foot depth of channel, Dunkirk never recovered from the depression in navigation interests which was at its lowest on the lakes in 1876–'77; and did not participate in the revival which followed, and which so prospered Buffalo and Tonawanda.

If to this history I add that at present the piers and wharves in Dunkirk Harbor are most dilapidated, and shorn of business, and that no signs of any repairs to them, and that no signs of improvement of any kind are visible, we shall be safe in concluding that the only alternatives before us are, either the harbor should be improved, completed,

and deepened, or else the United States should cease all expenditures thereon. It clearly is of no avail to preserve the harbor at an annual expense of from $5,000 to $10,000 for less than 100 vessel entrances and clearances. Such vessels can use the harbor as it is and will be, without further expense.

Would the commerce of the port improve if a deep and safe harbor were here, and can such be made without enormous expenditure? An affirmative answer to this question will declare the harbor "worthy of improvement by the General Government."

COMMERCIAL OUTLOOK.

There are five railroads passing through Dunkirk.

The Lake Shore and Michigan Southern is the most important with its large east and west transportation of all kinds of products and material. By this line Buffalo is 40 miles distant from Dunkirk, which is the first important station after leaving Buffalo for Chicago.

The New York, Chicago and St. Louis Railroad is parallel to the Lake Shore from Buffalo to Chicago and passes through Dunkirk in the southerly portion of the city, and adjoining the line of the Western New York and Pennsylvania Railroad which might, under certain conditions, be the most important railroad, for the interests of Dunkirk, entering that city. This railroad has one line from Buffalo to Dunkirk (there leaving the lake shore) to Oil City 137 miles. A cross line from Oil City to Olean, 116 miles, or to Bradford, 97 miles, and a second main line from Buffalo to Olean and Emporium, 121 miles, makes with other minor branches a network which enables the road to do a large coal business. If this road should choose to use Dunkirk as a coal harbor (in case the harbor was improved) it would be able to throw a heavy tonnage there.

The Dunkirk, Allegheny and Pittsburg Railroad (now owned or controlled by those who control the New York Central) extends from Dunkirk to Titusville, 91 miles. By building or through arrangement with existing lines this road might also use Dunkirk as a point for shipping coal in the future.

Lastly, the New York, Lake Erie and Western Railroad, which is the only road that has tried in years past to use the port, and which has been forced to abandon its decaying dock and elevator yet has its lines connecting with pier and water front. This road by its branch 46 miles long to Salamanca is in connection with its main east and west line, which is joined at Hornellsville by the line from Buffalo.

From Dunkirk to Jersey City by this route is 459 miles. From Buffalo via Hornellsville to Jersey City it is 423 miles. Vessels coming down the lakes have 30 miles further to go to reach Buffalo than to reach Dunkirk so that the total to New York via either way is practically the same. The whole matter rests very largely with the railroads. If in the future they should become crowded in dock room, or find it more convenient to throw a part of their bulky business via Dunkirk, instead of via Buffalo, they would do so. It is quite certain, however, that the harbor must be improved before the railroads would entertain any ideas about using it. The proximity to Buffalo on one side and Erie on the other must be overcome by offering equal inducements at Dunkirk.

Should a coal railroad see fit to use the harbor it would be in rivalry, or in relief to Buffalo, and only those in control of such roads could decide this matter. At present they would not in all probability enter-

tain the idea of using the harbor. But the harbor is there and half finished, and a reasonable expenditure on it might secure a large business. The commercial outlook of the city, as presented by the citizens themselves, was requested from them, and is furnished herewith by letters and statements numbered 1 to 16.

ENGINEERING STANDPOINT.

The fact that the United States has expended a large sum of money upon this harbor is a good reason why the harbor should not be abandoned, providing that the improvements projected can be done at a reasonable cost. If after the expenditure of half a million of dollars in sixty-five years, an additional sum of half a million would render the harbor available for all but the largest craft would not such an investment be such as a business community should adopt?

The simplest way to secure a safe harbor at Dunkirk with 16 feet of water would be to close the present channel entirely by running a crib breakwater from the beacon crib to the west end of the breakwater, about 725 feet * * * extend the breakwater the 1,100 feet that it lacks * * * thus protecting the harbor from all dangerous storms and entirely excluding all sand from the harbor for an indefinite term of years, and then dredging a channel from deep water in the lake to the docks, 2,825 feet, and a basin at the docks 750 feet square. To secure 16 feet for craft, dredging should be carried to 17 feet depth. * * *

For the reasons thus given I deem Dunkirk Harbor with a view to securing 16 feet of water as "worthy of improvement." A survey should be careful, and the soundings over all areas proposed to be dredged should be numerous and exact, hence such a survey would probably cost not less than $500, besides the subsequent reduction and mapping, $300 more.

Respectfully submitted.

E. H. RUFFNER,
Major of Engineers.

LIST OF CITIZENS OF DUNKIRK, N. Y., PRESENT AT MEETING OF JULY 22, 1892.

Mayor F. G. Gould, agent New York, Lake Erie and Western Railroad.
Ex-Mayor William Martin, manufacturer of car-heating apparatus for use of steam.
Postmaster C. M. Reed.
M. L. Hinman, president Brooks Locomotive Works.
George P. Isham, manufacturer.
Charles Kennedy, manufacturer.
O. Smith, manufacturer.
John Scully, lumber manufacturer.
M. J. O'Donnell, lumber manufacturer.
J. T. Williams, editor Evening Observer.
J. C. Haggett, collector of port.
Richard Mulholland.

LETTER OF MR. M. L. HINMAN.

OFFICE OF THE BROOKS LOCOMOTIVE WORKS,
Dunkirk, N. Y., August 4, 1892.

DEAR SIR: The committee appointed at the time of your recent visit in Dunkirk to collect data in relation to the business of our city, provided the proper amount of water was available in our harbor, beg to transmit herewith the following letters from—

E. B. Thomas, first vice-president New York, Lake Erie and Western Railroad.
Andrew Dotterweich.
Mulholland Spring Company.
D. S. Wright.
Brooks Locomotive Works.
Dunkirk Engineering Company.
Sly & Coddington, Fredonia, N. Y.
Geo. M. Newton.
R. L. Cary.
Colman & Saunders.
Chautauqua Cement Company.
Martin Anti-Fire Car Heating Company.
M. J. O'Donnell & Co.

We understand that Messrs. Barber, Scully & Co., have sent their report, direct. Please place the same with the papers sent herewith.

The committee have received many verbal reports of the advantages which would accrue to merchants, tradesmen, and others, were commerce resumed at this port as in times past, but of which we have been deprived owing to the condition of our harbor.

Trusting that you will recommend a large appropriation, such as in your judgment the condition warrants, we remain,

Yours, truly,

M. L. HINMAN,
For Committee.

Maj. E. H. RUFFNER, U. S. A.

LETTER OF MR. JOHN A. MIDDLETON, CHIEF CLERK.

NEW YORK, LAKE ERIE AND WESTERN RAILROAD COMPANY,
OFFICE OF THE FIRST VICE-PRESIDENT,
NO. 21 CORTLANDT STREET,
New York, July 26, 1892.

DEAR SIR: Replying to your favor of the 25th instant, addressed to the first vice-president, in regard to an appropriation for increasing the facilities of the Dunkirk Harbor.

Mr. Thomas is now abroad, and in his absence I send you a copy of a letter written by him February 9, last, to the Hon. William Martin, mayor of Dunkirk, in regard to the matter referred to, which I think covers everything that he could say on the subject.

If you care to discuss the question further with our people, Mr. Vaillant, our second vice-president, will be very glad to talk with you when you are next in the city.

Yours, truly,

JOHN A. MIDDLETON,
Chief Clerk.

Mr. M. L. HINMAN,
Dunkirk, N. Y.

LETTER OF MR. E. B. THOMAS.

NEW YORK, *February 9, 1892.*

DEAR SIR: Referring to our interview of to-day, in regard to the importance of improving the harbor at Dunkirk.

The harbor facilities at Dunkirk are so poor, in my opinion, that a large amount of business has been driven away from that port to other lake ports which would have naturally sought Dunkirk. It is impossible to estimate the volume of this business, except by comparing the large and increasing business done at other lake ports, and considering that Dunkirk would have had its fair share thereof had there been proper facilities for handling the traffic.

Dunkirk is one of the termini of this company's road and would have been largely used by us for the handling of lake traffic had the conditions of the harbor been such as to justify it. I am of the opinion that if the contemplated improvements are made a large lake traffic can be readily built up, especially in the handling of coal, of which large volumes are annually shipped to Western points via the lakes. Traffic naturally seeks that port at which it can be handled most efficiently and economically; and with the large and rapid growth of the lake trade I feel quite confident that it is only necessary to offer facilities to cultivate it.

I trust that your efforts to secure a proper appropriation for improving the harbor at Dunkirk will be successful, and I am quite positive the increase in the business at that place, which will surely follow, will amply compensate the Government for its expenditure.

Yours, truly,

E. B. THOMAS.

Hon. WILLIAM MARTIN,
Mayor of Dunkirk, care Willard's Hotel, Washington, D. C.

LETTER OF BROOKS LOCOMOTIVE WORKS.

OFFICE OF THE BROOKS LOCOMOTIVE WORKS,
Dunkirk, N. Y., August 1, 1892.

DEAR SIR: Referring to your recent visit to our city, to obtain views of our citizens for improvements of our harbor, we would say, that had the harbor of Dunkirk been maintained from time to time during the past fifteen years, to accommodate vessels of increased tonnage, we should have been enabled to have utilized the same to our great benefit, not only in the receiving of material but in shipments.

We are large consumers of Lake Superior charcoal iron, which for years past we have been obliged to obtain by rail. We also use a large amount of oak, ash, and pine lumber, which comes by rail for similar reasons.

We construct locomotives for operating mines and lumber mills along the shores of Lake Huron, Lake Superior, and the upper parts of Lake Michigan, but owing to the inadequacy of harbor facilities we have been compelled to ship by rail.

We trust that you will consider the harbor of Dunkirk of sufficient importance to conscientiously recommend a suitable appropriation.

We remain, truly yours,

BROOKS LOCOMOTIVE WORKS.
By M. L. HINMAN,
President and Treasurer.

Maj. E. H. RUFFNER,
Corps of Engineers, U. S. A.

LETTER OF MESSRS. COLMAN & SAUNDERS.

DUNKIRK FLOURING MILLS,
44, 46, 48 EAST FRONT STREET,
Dunkirk, N. Y., July 28, 1892.

DEAR SIR: We take the liberty of writing you in regard to the necessity of some work on our harbor, whereby we may be able to get vessels of the present build and draft in here with grain, etc., as we used to get light draft.

We have been in the grain and milling business here since 1852, and, when our harbor was in condition, have received an average of 250,000 bushels for grinding and shipment east by railroad yearly. But for the past ten years the size of vessels built has increased and the depth of water has not; consequently we have been obliged to abandon our lake receipts and depend on higher rate by rail, thereby largely decreasing our trade. With our growing and prosperous city and the steady improvement on shore, we feel it is our due that some improvement be made in our harbor by increased depth of water and the repair and extension of works for the safety of vessels in port. Trusting you will give the matter your careful and earnest attention,

We remain, yours, truly,

COLMAN & SAUNDERS.

Maj. E. H. RUFFNER,
Corps U. S. Engineers,

LETTER OF MULHOLLAND SPRING COMPANY.

MULHOLLAND SPRING COMPANY,
Dunkirk, N. Y., July 28, 1892.

DEAR SIR: In relation to the proposed improvement of Dunkirk Harbor, we desire to say that we are manufacturers of carriage springs as well as carriages ironed to the white, which we now ship by railroad in carload lots and upwards, but which, if our harbor was of sufficient depth to admit lake vessels of the size now commonly used in lake commerce, we could ship by lake with great advantage, especially in our Western customers, thereby saving freight charges, which would have the effect of largely increasing our business in that section.

We desire also to say that in the manufacture of our goods we use large quantities of steel, carriage hardware, wheels, and lumber, which for the reasons above given we are compelled to have come to us by railroad, but which we could otherwise have come to us by lake vessels, with saving and advantage.

We trust you will give the matter of the proposed improvement of our harbor due consideration.

Respectfully, yours,

MULHOLLAND SPRING COMPANY.

Maj. E. H. RUFFNER,
U. S. Engineer.

LETTER OF DUNKIRK ENGINEERING COMPANY.

DUNKIRK ENGINEERING COMPANY,
Dunkirk, N. Y., July 30, 1892.

DEAR SIR: At the suggestion of our mayor, Mr. F. G. Gould, we make you the following statement and request:

During the year 1891 this firm used over 400 tons of iron, nearly 600 tons of bituminous coal, 70 tons of Blossburg coal, 120 tons coke, 126 tons of molding sand, 112 tons of lumber, besides various other supplies of material and machinery. On all of these materials we had to pay exorbitant freight rates on account of having no water competition, as most of them could have come by water. A large part of this material we manufactured into heavy machinery and geared locomotives, much of which could have been shipped by water at low rates. At the present time we have a boiler sheet planer weighing about 23,000 pounds which we wish to ship to the Detroit Dry Dock Company, which we believe could be shipped by water at a very much reduced rate. Such contingencies as these are constantly arising, and we earnestly pray that you will do all in your power to put our harbor in the way of improvement so that it may be used by vessels drawing at least 16 feet of water, both as a commercial port and as a harbor of refuge.

Respectfully,

DUNKIRK ENGINEERING COMPANY,
By GEO. M. NEWTON.

Maj. E. H. RUFFNER,
Corps of Engineers, U. S. A.

LETTER OF CHAUTAUQUA CEMENT COMPANY.

CHAUTAUQUA CEMENT COMPANY,
Dunkirk, N. Y., August 1, 1892.

DEAR SIR: The Chautauqua Cement Company own in the neighborhood of 80 to 100 acres of land carrying deposits of marl and clay, analyses of which show that these materials will produce a quality of Portland cement equal to the imported article, and to the extent of 5,000,000 to 10,000,000 barrels. The company is duly organized, and have let contracts for machinery capable of producing 100 to 125 barrels per day. It is the intention of the company to ultimately increase this production to from 400 to 500 barrels per day. The company will look for its market to the lake cities and points accessible therefrom.

Respectfully,

E. S. ALLEN,
Secretary Chautauqua Cement Company.

Col. RUFFNER.

LETTER OF MARTIN ANTI-FIRE CAR HEATER COMPANY.

MARTIN ANTI-FIRE CAR HEATER COMPANY,
Dunkirk, N. Y., August 1, 1892.

DEAR SIR: The "Martin Anti-Fire Car Heater Company," organized and doing business in this city, are engaged in the manufacture of car-heating equipments and general machine work, including brass and iron castings, and they ship goods to a large number of Western States. They have consumed as much as two carloads of pig copper per week, as well as quantities of iron ore which, had there been harbor facilities, would have been received by lake. I am sure that with a good harbor and vessels stopping here our manufacturing could be greatly increased.

I hope you can see your way clear to recommend a resurvey of our harbor.

Respectfully,

MARTIN ANTI-FIRE CAR HEATER COMPANY,
WILLIAM MARTIN, *President.*

Col. RUFFNER.

LETTER OF M. J. O'DONNELL & CO.

M. J. O'DONNELL & CO.,
Dunkirk, N. Y., July 30, 1892.

DEAR SIR: In the matter of improving Dunkirk Harbor we will say that our business depends on its improvement. We get all our lumber in by lake, and as our business has increased in the last six years from the consumption of 500,000 feet

lumber to 3,000,000 feet, and the prospect is that in five years from now it will double in volume, if our harbor is improved, we are very much interested. At present we have great difficulty to get tonnage to bring our lumber. We have just received a cargo that ought to have been here six weeks ago, but it could not be shipped until a light-draft boat could be secured. Last year it cost us considerable money to lighter boats drawing 12 feet water.

If there were 16 feet water in the harbor we would have no difficulty in getting boats to come here, and we believe that millions feet of lumber would be landed here and shipped to Hornellsville and other points on the Erie road in preference to shipping from Buffalo, as it can be handled here for less money. We only speak of our own line of business. With a good harbor other lines of business would use it with equal advantage.

Hoping for a favorable report, we remain,

Yours respectfully,

M. J. O'DONNELL & CO.

Maj. E. H. RUFFNER,
Corps Engineers, U. S. A.

LETTER OF MR. R. L. CARY.

DUNKIRK, N. Y., *July 28, 1892.*

SIR: In the year 1867, in connection with another party, since deceased, I commenced the business of handling grain, flour, and feed in this city. The business has been carried on uninterruptedly from that time to this. For several years, and during the continuance of elevator and harbor facilities, we received large quantities of grain and flour by lake, and our firm did a large, prosperous, and growing business. From lack of harbor facilities this once prosperous business has been nearly destroyed. I express the positive opinion that were Dunkirk Harbor so improved as to give us reasonably deep water, with proper breakwater protection, the business of handling grain by lake would be greater than ever before, the railroad facilities to a large section of country having been much increased in recent years, and the city itself more prosperous than ever before.

Yours truly,

R. L. CARY.

Maj. E. H. RUFFNER,
Corps of Engineers, U. S. A.

LETTER OF MR. GEORGE M. NEWTON.

DUNKIRK, N. Y., *July 30, 1892.*

DEAR SIR: During the summer of 1891 I was engaged as a contractor for the macadam on West Fourth street. I purchased my stone f. o. b. boat at Marble Head at $2.25 per cord of 5½ tons, and had an agreement with brokers to deliver them alongside docks at Dunkirk for the sum of $2.25 per cord.

The schooner *J. B. Kitchen* brought me one load and grounded near enough to the dock so that we lighted her with a scaffold. She would not come again. After trying in vain to secure other boats I finally secured the *Smith & Post* at an advanced rate, also agreeing to pay her tow bill. She was a small boat and made several trips, grounding nearly every time, but getting near enough to the dock so that we could make a bridge on her cables and light her, but I could get no other boat, and had at last to quarry the stone in the town of Sheridan and haul them with teams, so that they cost about $9 per cord. I had to use about 400 cords of these stones, and get the same quantity by way of the lakes. The delay cost me many dollars, in addition to the extra cost of the stone, which I had to quarry myself. These stones were of use as foundation stone for a Telford macadam. Had I been able to guarantee 14 feet of water I would have had no trouble in getting lake transportation and could have secured another remunerative contract this season.

Hoping that you will do all that you can for us, I remain,

Yours respectfully,

GEORGE M. NEWTON.

Maj. E. H. RUFFNER,
Corps of Engineers, U. S. A.

LETTER OF MR. ANDREW DOTTERWEICH.

CITY BREWERY,
Dunkirk, N. Y., July 28, 1892.

DEAR SIR: I desire to say in regard to the proposed survey and improvement of Dunkirk Harbor that I use in my business large quantities of barley, malt, and hops, which I get from Canada and from the West by railroad, but which I could have come by lake with great advantage were it not for the present shallow condition of our harbor, which does not permit vessels of suitable size to enter our port.

For the other business interests of Dunkirk, as well as my own, now and in the future, I trust the proposed improvements to the harbor may be made.

Respectfully yours,

ANDREW DOTTERWEICH.

Maj. E. H. RUFFNER,
U. S. Engineer.

LETTER OF MESSRS. BARBER, SCULLY & CO.

DUNKIRK, N. Y., *July 25, 1892.*

DEAR SIR: In answer to yours, 20th instant, we will say that we find it very hard to do much business here, on account of trouble to boats bringing in our rough stock. We were obliged to buy a propeller in order to keep our yards stocked, other boats being unwilling to take light loads for us, and we could not load them to their capacity on account of shallow channel here. This spring we were forced to sell our boat, as it could not get in here with a load, and the prospect of stocking our yards is anything but promising at present. We have been handling about 17,000,000 feet of lumber annually, and this is not 10 per cent of the amount retail yards "in which different members of our firm are interested," require for their trade. This will show you how much lumber we have a market for and are not able to handle, because we can not get boats to bring the stock here for us.

We feel confident our business would be increased at once if we could have the 16-foot channel and be able to load large boats.

We trust you will feel convinced that 16 feet of water is necessary here and aid us in getting it.

Yours, etc.,

BARBER, SCULLY & Co.

Maj. E. H. RUFFNER,
U. S. Engineer.

LETTER OF MESSRS. SLY & CODDINGTON.

FREDONIA, N. Y., *July 29, 1892.*

DEAR SIR: As collector of the port of Dunkirk, we ask you to use your influence for the improvement of said Dunkirk Harbor, for the reason that our supply of lumber from Pennnsylvania and western New York is exhausted and we need some way of shipping from the West and North other than by rail.

For the benefit of ourselves and the community at large, hoping this will have your attention, we are,

Yours truly,

SLY & CODDINGTON.

Mr. J. HAGGETT.

LETTER OF MR. J. C. HAGGETT, COLLECTOR.

CUSTOM-HOUSE, DUNKIRK, N. Y.,
Collector's Office, August 1, 1892.

MY DEAR SIR: In reply to a communication from United States Inspector J. C. Quintus, dated July 20, relating to our proposed harbor improvements, I have the honor to submit the following: As I am a member of the committee whose duty it is to gather such figures and facts, as in their judgment, will be of benefit to you in making your report, and as I can fully sustain and indorse such report, also the communications accompanying the same, I deem it unnecessary for me to go over the ground again.

Under date of February 8, I wrote to the Department on this subject, which I hope will be proper here to quote:

"There are supposed to be about 14 feet of water in the channel, when dredged, at an ordinary stage of water, but nearly every vessel coming into this port during the past season, drawing over 10 feet of water, has been grounded and had to discharge a part of their cargo before they could get to the docks. If the Government does not remedy this difficulty by dredging, etc., this port will be soon practically closed to vessels of any considerable draft."

I will add, however, that in my judgment, the future of Dunkirk largely depends upon a liberal and comprehensive line of improvements for this harbor, and with such measures successfully carried out our future as an important lake city is assured.

I have the honor, sir, to be,

Your obedient servant,

J. C. HAGGETT,
Collector.

Maj. E. H. RUFFNER.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 120.

NANTICOKE RIVER, DELAWARE.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of Nanticoke River, Delaware.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers dated December 5, 1892, together with a copy of a report from W. F. Smith, United States agent, major of engineers, U. S. Army, retired, dated August 4, 1892, of a preliminary examination of Nanticoke River, Delaware, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: I have the honor to submit the inclosed copy of report, dated August 4, 1892, by W. F. Smith, United States agent, major of engineers, U. S. A., retired, of the results of preliminary examination of Nanticoke River, Delaware, made to comply with requirements of the river and harbor act approved July 13, 1892.

I concur in the opinion of the local and division engineers that the river is worthy of improvement by the General Government.

An estimate of $500 is submitted as the cost of the surveys necessary to the preparation of plan and report with project and estimate of the improvement proposed.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF NANTICOKE RIVER, DELAWARE.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., August 4, 1892.

GENERAL: In compliance with instructions contained in Department letter of July 14, 1892, and the requirements of section 7 of the river and harbor act of July 13, 1892, I have the honor to submit the following report upon the preliminary examination of Nanticoke River, Delaware, made under my direction by Mr. A. Stierle, assistant engineer.

In view of the facts, and for the reasons set forth in the report of the assistant engineer, a copy of which accompanies this, Nanticoke River, Delaware, is, in my opinion, worthy of improvement by the General Government, and a survey is recommended.

The least amount required to make the survey and report with project and estimate of cost of improvement is $500.

Very respectfully, your obedient servant,

WM. F. SMITH,
United States Agent.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. Wm. P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., August 9, 1892.

Respectfully submitted to the Chief of Engineers.

There has been great commercial progress in the last ten or fifteen years on the peninsula between Chesapeake and Delaware bays, due to the improvement of water courses and the building of railroads. From personal knowledge, and in view of the facts and reasons set forth in the report of the local engineer, I am of the opinion, and so report as required by the law, that, taking into account the present and prospective demands of commerce, the Nanticoke River, Delaware, is "worthy of improvement by the General Government."

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

REPORT OF MR. A. STIERLE, ASSISTANT ENGINEER.

UNITED STATES ENGINEER OFFICE,
Wilmington, Del., August 1, 1892.

SIR: In compliance with your instructions, I have the honor to submit the following report upon the preliminary examination of Nanticoke River, Delaware:

The headwaters of the Nanticoke River consist of numerous branches rising mainly in the northern section of Sussex County, Del., two of the largest being called Middleford and Deep Creek. The river flows in a south-southwesterly direction into Tangier Sound, Chesapeake Bay, its most prominent tributaries being, from the east, Broad Creek River, in Delaware, and from the north, Marsh Hope Creek, also called the Northwest Fork, in Maryland. After passing the Delaware State line the river enters Maryland and forms the boundary line between Dorchester and Wicomico counties to its mouth. The river is essentially a tidal stream, the influence of the tide being felt above the junction of the head branches, Middleford and Deep Creek—in the latter as far as the town of Concord, 43 miles above the mouth.

With the exception of one shoal, about 1 mile below the mouth of Wetipkin Creek, which has a depth of 9 feet at low tide and a very contracted channel, known as the "swash channel," the river has up to the Delaware State line ample depth and width for present navigation. At Vienna, Md., about 25 miles above the mouth, the Baltimore and Eastern Shore Railroad crosses the Nanticoke upon a pile bridge in which is an iron draw 40 feet in width. About 1¼ miles above Sharpstown, near the Delaware line, the characteristic continuity and uniformity of depth in the channel disappear and thence numerous shoals and bars obstruct the river, which become more pronounced as the head is approached. None of the obstructions are, however, of great extent and can be readily removed at comparatively little expense to make a fair channel. From Truitts Wharf near the State line to below the mouth of Broad Creek River, a distance of about 1¼ miles, shoals with a minimum depth of 8 feet at low tide prevail, the bottom being hard, stiff clay. From the mouth of Broad Creek River to Ellis Wharf the depth in the channel is over 12 feet, but in the following reach of the river, for about one-quarter of a mile, it decreases to 10 feet, after which it increases again to 12 feet as far as Cannons Ferry. Up to this point the width of the channel appears to be sufficient for the maneuvering of vessels.

From Cannons Ferry to the head of navigation at Seaford, Del., a distance of nearly 5 miles, the channel is generally shoal and narrow and may average from 9 to 10 feet in depth. At the lower wharves at Seaford the depth at low water is about 7 feet. Within and above the draw of the Delaware Railroad Bridge, which crosses the Nanticoke here, a shoal exists with only 5½ feet of water over it at low tide. Many sailing vessels and steamers pass through this draw daily, and it recently occurred that one of these steamers remained aground in the draw for five hours. The depth of water above the railroad bridge as far as the iron county bridge, a section about one-quarter of a mile in length, appears to be sufficient for the present needs of navigation. This section forms the harbor proper at Seaford.

The interests for the improvement of Nanticoke River center at Seaford. This town has about 2,500 inhabitants; about 35 stores; 2 fertilizer companies with a total annual capacity of 15,500 tons; 2 canning establishments employing about 100 hands in season, the main work being done by machinery; 5 oyster packing houses; and 2 flour and 2 saw mills. The surrounding country is said to be the best for berry and fruit culture and is in a high state of cultivation. It is stated that, notwithstanding the large shipments by rail, the commerce by water of grain, fruit, berries, oysters, wood, etc., amounts to not less than $3,000,000 annually.

Seaford is the terminus of two steamboat lines, running daily boats from Baltimore. About 100 oyster vessels are employed during the season, and six schooners, ranging from 75 to 650 registered tonnage, are owned in town and make regular trips throughout the year to southern and eastern ports.

Mr. W. M. Ross, the owner of the largest fertilizer works, who kindly furnished the above statistics, states that his vessels, the largest of which draws 12 feet when laden, experience much difficulty in proceeding up the river and are subject to frequent delays on account of the shoal water below Seaford during low tides. The same trouble is reported by the steamboat companies, whose boats at such times can not reach the upper wharves. The deep-draft sailing vessels often need two or three high tides in the river before they reach their destination. Those concerned, therefore, suggest that a 12-foot low-water channel 100 feet wide is needed, extending from deep water below to the county bridge at Seaford. It is not believed that much dredging is required to make such a channel.

It is estimated that if the improvement is made the commerce on the river will increase to double its present value, as many large factories would locate here if

raw material could be more readily obtained by water. The river is worthy of improvement.

The public records show that that portion of the Nanticoke River under examination has been surveyed by the Engineer Department under the direction of Major, now Colonel, Wm. P. Craighill, Corps of Engineers, in 1878. The charts then made may be of great value for study, if the river is recommended for improvement. As, however, many physical changes may have taken place since that time, especially at Seaford, a detailed survey of the present shoals is needed, which can be made for $500.

Very respectfully, your obedient servant,

A. STIERLE,
Assistant Engineer.

Gen. WM. F. SMITH,
United States Agent.

O

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 121.

OHIO RIVER, BETWEEN IRONTON, OHIO, AND GUYAN RIVER, WEST VIRGINIA.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

With a letter from the Chief of Engineers, report of the examination of the Ohio River between Ironton, Ohio, and Guyan River, West Virginia.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 5, 1892.

SIR: I have the honor to inclose, herewith, a letter from the Chief of Engineers, dated December 5, 1892, together with a copy of a report from Maj. Amos Stickney, Corps of Engineers, dated September 3, 1892, of a preliminary examination of the Ohio River between Ironton, Ohio, and 3 miles along and up the Ohio east of the mouth of Guyan River, West Virginia, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

J. M. SCHOFIELD,
Major-General, Acting Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 5, 1892.

SIR: The river and harbor act approved July 13, 1892, provides for preliminary examination of Ohio River between Ironton, Ohio, and 3 miles along and up the Ohio east of the mouth of Guyan River, West Virginia, for the purpose of ascertaining what is necessary to clear said river between said points of obstructions and to deepen the channel thereof where necessary, with all such other improvements as may be found expedient for the storing and harboring of steamboats, coal barges, and for the landing and shipping of coal and other freights on said river between said points.

This examination was assigned to the charge of Maj. Amos Stickney, Corps of Engineers, and I have now the honor to submit the accompanying copy of report dated September 3, 1892, by that officer to comply with the terms of the act.

Maj. Stickney states that this locality is, in his opinion, eminently worthy of such improvement by the General Government as can be made at reasonable cost, and his opinion is concurred in by the Division Engineer and by this office. The survey necessary for preparing and submitting plans for improvement will, it is estimated, cost $2,500.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF THE OHIO RIVER BETWEEN IRONTON, OHIO, AND THREE MILES ALONG AND UP THE OHIO EAST OF THE MOUTH OF GUYAN RIVER, WEST VIRGINIA.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, September 3, 1892.

GENERAL: I have the honor to submit the following report on the preliminary examination of the Ohio River between Ironton, Ohio, and 3 miles along and up the Ohio, east of the mouth of Guyan River, West Virginia, for the purpose of ascertaining what is necessary to clear said river between said points of obstructions, and to deepen the channel thereof where necessary, with all such other improvements as may be found expedient for the storing and harboring of steamboats, coal barges, and for the landing and shipping of coal and other freights on said river between said points. This examination was assigned to my charge by letter of the Chief of Engineers, U. S. Army, dated July 14, 1892, and was made by my assistant, First Lieut. Harry F. Hodges, Corps of Engineers, U. S. Army, a copy of whose report is transmitted herewith.

The reach of river between Ironton, Ohio, and a point 3 miles above the mouth of the Guyan River is about 25 miles in length, and the principal obstructions to navigation are a number of bars composed mostly of sand and gravel, that at the mouth of the Guyan River being one of the worst upon this part of the Ohio River, and causing at this time a suspension of navigation for boats coming from below. Upon this reach of river are located a number of thriving cities and towns which are largely engaged in manufacturing and shipping. The principal cities are Ironton, Ohio; Ashland and Catlettsburg, Ky.; Huntington and Guyandotte, W. Va. The removal of obstructions to navigation in this reach is a matter of particular importance to these cities, and it is a matter of general importance to a large part of the entire commerce of the river which passes this locality. The appropriations which have been made by Congress for the improvement of the Ohio River have been expended upon a length of 966 miles. It has therefore been impossible, with the small amount provided per mile of river, to make or to attempt thorough improvements of all localities.

There can be no question that this particular locality is an important part of the river, and should receive as much attention as it is possible to give it. It has been suggested that the improvement should be

made by the construction of a lock and movable dam similar to that now in operation at Davis Island, 5 miles below Pittsburg, in order that a deep pool may be formed for the harboring of steamboats and coal boats. Such an improvement would cost somewhere in the neighborhood of $1,000,000, and, while forming a harbor, would not improve the general navigation of the river except for a comparatively short reach, which would be cut off during low-water stages from deep-water communication with the river above and below, until deep water was extended by similar works above and below. The system of improvement by locks and movable dams inaugurated on the upper part of the Ohio River has apparently been determined upon by the national Congress only to a point about 30 miles below Pittsburg. In this distance six dams are required to obtain a minimum depth of 6 feet in low water. Ironton is 325 miles from Pittsburg, and while the slope of the river is much less at the former point than in the upper part of the river, and permissible length of pools would be greater, it is manifest that a great many dams would be needed to carry the system through so that it should be continuous from Pittsburg to Ironton, or in the other direction from Ironton to Cincinnati, a distance of 142 miles.

It is highly probable that all requisite improvements of channel as far as present commerce demands, and which will be beneficial to through as well as local commerce, can be made at a very much less cost than by the construction of a lock and dam, and the locality is eminently worthy of such improvement by the General Government as can be made at reasonable cost. To form plans and estimates for necessary work will require a survey which is estimated to cost $2,500.

Very respectfully, your obedient servant,

AMOS STICKNEY,
Major of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., ——, 1892.

Respectfully forwarded to the office of the Chief of Engineers.

Upon the information given by the district engineer I am of opinion that the locality is worthy of improvement by the General Government, in the manner indicated by him, and approve his estimate of the cost of the necessary surveys involved.

O. M. POE,
Colonel, Corps of Engineers,
Division Engineer, Northwest Division.

REPORT OF LIEUTENANT HARRY F. HODGES, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Cincinnati, Ohio, September 1, 1892.

SIR: I have the honor to make the following report upon the preliminary examination of the Ohio River, from Ironton, Ohio, to a point 3 miles above the mouth of the Guyan River, West Virginia.

The distance along the river between the points named is 25 miles. In this stretch the river is obstructed by bars and shallows as follows, viz:

Ashland Bar (Pogue Shallows), extending from about 1 mile above Ironton to the Ashland furnaces.

Big Sandy Shallows, extending from about 1 mile below Catlettsburg to the Kenova bridge.

Twelve Pole Bar, extending from 1 mile below Burlington to the town.

Guyan Bar, below the mouth of the Guyan River.

Dogham Bar, about 3 miles above the same point.

In addition there are two or three snags near the channel, and a large number near the water line. The latter are complained of as obstructions to landing.

The Guyan Bar is said to be the worst one to be found for a long distance on the river. Any improvement in this locality would benefit both the through river traffic and the local commerce. The latter is large in the items of iron, coal, and lumber. The present examination was asked with a view to increasing the depth on the shallows named, and to carrying out such further improvements as should make this reach of the river suitable at all seasons for the shipment of coal. The construction of a movable dam to pond the river above Ironton seems to be what is desired to effect the latter object.

A dam at this place would either stand by itself, without relation to the general improvement of the river, or would require the extension of the slack-water system much further than has yet been contemplated. Without entering upon this question, it may be found practicable to improve the channel by much less costly operations. Of such improvement the locality is undoubtedly worthy. I would therefore recommend a survey of the river from Ironton to a point 3 miles above the mouth of the Guyan River; the estimated cost of such survey is $2,500.

Very respectfully, your obedient servant,

HARRY F. HODGES,
First Lieutenant of Engineers.

Maj. AMOS STICKNEY,
Corps of Engineers, U. S. A.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 122.

DULUTH HARBOR, MINNESOTA.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

A letter from the Chief of Engineers, submitting a copy of the report of one of the engineers of his investigation into the ownership of the ground on which are located the canal, canal entrances, and piers in Duluth Harbor, Minnesota.

DECEMBER 12, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 9, 1892.

SIR: I have the honor to transmit herewith a letter from the Chief of Engineers, dated the 3d instant, submitting the copy of the report of Maj. Clinton B. Sears, Corps of Engineers, dated November 26, 1892, of his investigation into the ownership of the ground on which are located the canal, canal entrances, and piers in Duluth Harbor, Minnesota, made in compliance with the provisions in the item of the river and harbor act approved July 13, 1892, making appropriation for improving the harbor at Duluth.

Attention is respectfully invited to the recommendations made by the Chief of Engineers, which are based upon the views expressed by Maj. Sears in his report.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., December 3, 1892.

SIR: The item of the river and harbor act of July 13, 1892, making appropriation for improving harbor at Duluth, Minn., contains the following provision:

And the Secretary of War is hereby directed to cause an investigation to be made into the question of ownership of the ground on which is located the canal, canal entrances, and piers in this harbor, with the view of determining whether the grant and conveyance made by the city of Duluth, dated January ninth, eighteen hundred

and eighty-eight, to the United States, and accepted by the United States in the river and harbor act of August eleventh, eighteen hundred and eighty-eight, covers the same in full, and make report thereof to Congress, and should it appear that a portion of the ground on which is located said canal, canal entrances, and piers has not yet been vested in the United States, to make such recommendations as may be necessary to the end that all the ground pertaining to said canal, canal entrances, and piers may become the property of the United States.

An investigation of the question has been made by Maj. Clinton B. Sears, Corps of Engineers, and attention is respectfully invited to his report thereon, dated November 26, 1892, a copy of which is herewith submitted.

It appears that the full ownership of all the ground covered by the canal, its piers and entrances, has not yet been vested in the United States. The land yet to be acquired is fully described in the report and delineated on its accompanying map.

It is the opinion of Maj. Sears that the city of Duluth is now fully aware of the vital importance of the canal to its commerce and that it would be willing to donate the whole of the land needed to the United States without reservation or condition. It is possible, however, that the donation might be accompanied by the reservation of a right of way for a tunnel, a reservation which is not considered objectionable, provided the tunnel be constructed under certain restrictions to be prescribed by the War Department.

In accordance with the views expressed by Major Sears the following recommendations are made:

(1) That negotiations be entered into by the Secretary of War with the city of Duluth with a view to securing the unconditional donation of the land needed, accompanied by vacation of the abutting streets.

(2) That, in the event the city refuses to make an unconditional donation, but accompanies the donation with the reservation of a right of way for a tunnel, Congress be requested to empower the Secretary of War to accept such conditional donation of the land, provided the said tunnel follow such lines and grades as the Secretary of War may approve.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

REPORT OF MAJ. CLINTON B. SEARS, CORPS OF ENGINEERS.

UNITED STATES ENGINEER OFFICE,
Duluth, Minn., November 26, 1892.

GENERAL: Referring to your letter of October 4, 1892, assigning to me the investigation into the ownership of the ground on which are located the canal, canal entrances, and piers in Duluth Harbor, Minn., as set forth in the act of Congress approved July 13, 1892, I have the honor to report as follows:

The history of the case has been compiled under my direction by Mr. J. H. Darling, Assistant Engineer, and, in giving a résumé of this history, I quote from his compilation.

On January 9, 1888, the city of Duluth gave to the United States a warranty deed for lots 247 to 260, both inclusive, fronting on Lake avenue, and for lots 247 to 260, both inclusive, fronting on Minnesota ave-

nue (see map herewith). Congress, in the river and harbor act of August 11, 1888, accepted lots 247 to 260, aforesaid, fronting on Minnesota avenue, but failed to accept lots 247 to 260, fronting on Lake avenue.

To remedy the apparent oversight in framing or engrossing the act of August 11, 1888, by which the Lake avenue lots were omitted from the acceptance, the Chief of Engineers, on April 4, 1890, recommended to the Secretary of War that he accept these lots as deeded, under the authority of an act entitled "An act to facilitate the prosecution of works projected for the improvement of rivers and harbors," approved April 24, 1888, by which Congress conferred upon the Secretary of War a general authority to purchase or to accept donations of lands and materials required for the maintenance or prosecution of such works.

Upon reference to the Judge Advocate's Department, the opinion was given that the Secretary of War had no authority to accept these lots for two reasons:

(1) The acceptance by Congress of only a part of the land described in the deed closed the transaction and left the city free to do what it wished with the lots not accepted.

(2) The deed to the United States was in consideration that the Government should maintain and improve a canal and ship channel, and the Secretary of War had not power to pledge the United States to such procedure.

In this opinion the Secretary of War concurred, and the lots were not accepted. It was intimated, however, by the Secretary of War, that, if the city of Duluth still retained ownership in these lots, and would donate them to the United States, by a deed not saddled with any conditions or considerations, they would be accepted.

The city, therefore, May 12, 1890, executed a new deed, conveying lots 247 to 260, both inclusive, on Lake avenue, to the United States. The deed, however, contained a reservation to the city, of the right to build and operate a bridge over these lots, *i. e.*, across the canal. As the War Department had already reported against granting permission to build this bridge, this deed was not accepted by the Secretary of War.

This ended the negotiations for the transfer of the canal property to the United States, and nothing has been done since.

It appears, therefore, that the only land deeded to and accepted by the United States, is comprised in lots 247 to 260, both inclusive, fronting on Minnesota avenue. Whether the city's title to these lots was good at the time of conveyance to the United States I am unable to say and I have no authority to employ expert counsel to make and pass on an abstract of title, but it is thought, as the city gave a warranty deed in which it stated that it was well seized in fee of the lots in question and that the same were free from all incumbrances and that it would warrant and defend the same in the possession of the United States Government, against all persons lawfully claiming or to claim the whole or any part thereof, that the city is bound to correct any imperfections and dispel any cloud on the title should any such be shown hereafter.

Besides these lots, it is presumed under the right of eminent domain that the United States possesses ownership in all the land covered by the canal, its approaches or entrances, and the canal piers lying outside the line of low water, both in Lake Superior and in Duluth Harbor, and not inside the established dock lines—that is to say, all the land easterly of the shore line CG, and westerly of the official dock line XY (See map herewith.) On this latter point, *i. e.*, ground westerly of XY

there may be some legal doubt, since a portion of it (lots 261 and 262, shown at A) has been plotted on the city map, and may have been sold. This doubt, however, will be dispelled whenever the United States acquires title to that portion of Minnesota avenue lying between lots 261 and 262, abutting on Minnesota avenue, as ownership of this will carry with it riparian rights, and under the law empowering the Secretary of War to establish dock lines no one can use these lots, as they lie wholly outside of the legally established dock lines.

The land yet to be acquired in order that the United States may have full ownership of all the ground covered by the canal, its piers, and entrances, and a sufficiency outside of, and parallel to the piers, to enable them to be widened, if necessary, is as follows:

Lot 261 on Minnesota avenue, lots 261 and 262 on Lake avenue, lot 262 on Lake front, and the abutting piece to latter out to low-water mark, H K G D, and the portions of Minnesota and Lake avenues abutting these lots; lots 247 to 260, both inclusive, on Lake avenue, and the portion of Lake avenue abutting these latter, and all of the land abutting on lots 247, 249, 251, 253, 255, 257, and 259 on Lake avenue out to the low-water line, E F G C, and the land covered by what was formerly known and platted as Portage street. (See map.) All this ground is shown on map as included between the parallel lines AD and BC (except that already deeded, shown by shaded lines).

The street portions are controlled by the city as easements for public use, and the city claims to own all the rest except the lots along the line AD on the canal side.

It is believed from conversation with members of the city council that the city of Duluth is now fully aware of the vital importance of the canal to its commerce and that it is willing and anxious to do all it can towards aiding the Government in obtaining undisputed title, and that it would be willing to acquire title to the lots along the line AD and quiet all adverse claims against its title to the balance, and donate the whole to the United States without reservation or conditions. Should this be done, the Secretary of War has power, under the act of April 24, 1888, to accept the land so donated. Should the city donate the ground with the condition that it reserve a right of way for a tunnel under the lots donated, then Congress only can accept the donation.

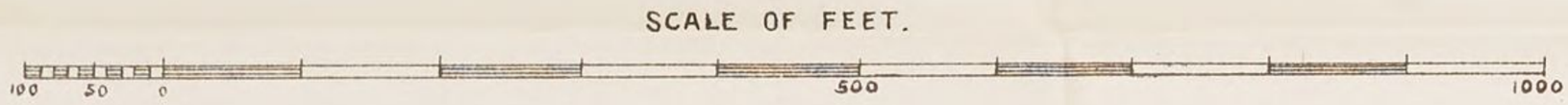
Under the aforesaid act of April 24, 1888, the Secretary of War also has power to institute condemnation proceedings or to purchase if a price can be agreed upon.

It is recommended, therefore, that under the authority of the Secretary of War, negotiations be entered into with the city of Duluth with a view to its unconditionally donating to the United States the land needed and above described, accompanied by a vacation of the abutting streets, which will then become the property of the adjacent lot owners, *i. e.*, the United States. Failing in this, it is recommended that the Secretary of War, under the act of April 24, 1888, institute condemnation proceedings and purchase the land.

It is possible the city may donate the land, accompanied by the reservation of right of way for a tunnel. If the tunnel have its extrados at crown at a sufficient depth below low-water line, say 26 feet, there would be no objection to accepting the land with this reservation of right of way, but an act of Congress would be necessary. It is further recommended, therefore, to provide for this contingency, that Congress be asked to empower the Secretary of War to accept a donation of the necessary land, with reservation to the city of Duluth for

MAP OF DULUTH CANAL
and the property covered by it on Minnesota Point. To accompany report of Major Clinton B. Sears, dated November 26, 1892.

The shaded portions are now owned by the United States.



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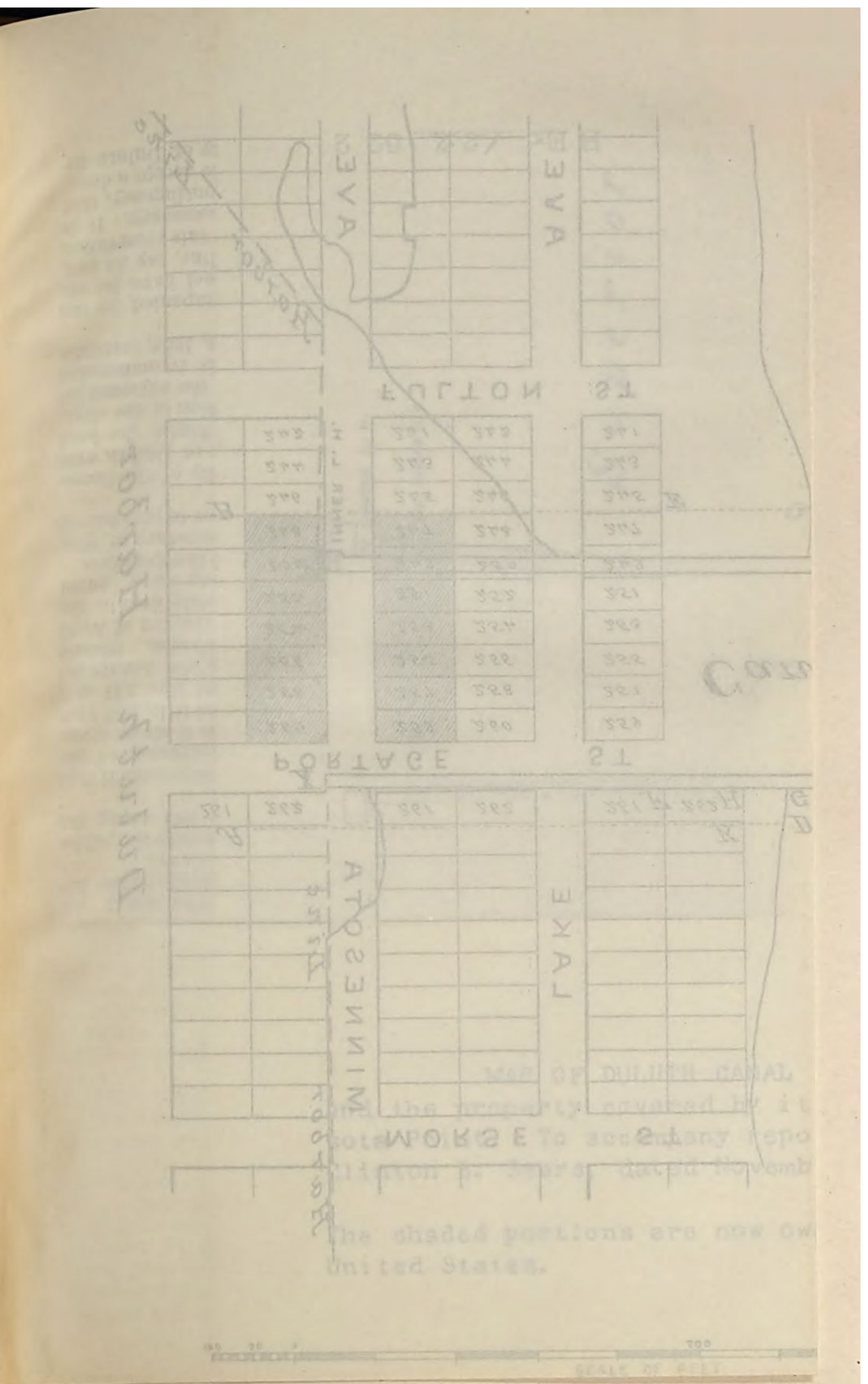
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right of way for a tunnel, said tunnel to follow such lines and grades as the Secretary of War may approve.

Very respectfully, your obedient servant,

CLINTON B. SEARS,
Major, Corps of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.
(Through Col. O. M. Poe, Corps of Engineers, Division Engineer, Northwest Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Detroit, Mich., November 29, 1892.

Respectfully forwarded to the office of the Chief of Engineers, approved.

O. M. POE,
Colonel, Corps of Engineers, etc.,
Division Engineer, Northwest Division.

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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 123.

BATTLE LINES AND SITES FOR TABLETS AT ANTIETAM.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

An estimate of appropriation for battle lines and sites for tablets at Antietam, submitted by the Secretary of War.

DECEMBER 13, 1892.—Referred to the Committee on Appropriations and ordered to be printed.

TREASURY DEPARTMENT,
December 12, 1892.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I have the honor to transmit herewith, for the consideration of Congress, an estimate of appropriation for battle lines and sites for tablets at Antietam, $23,750, submitted by the Secretary of War on the 10th instant.

Respectfully yours,

CHARLES FOSTER,
Secretary.

WAR DEPARTMENT,
Washington, December 10, 1892.

SIR: I have the honor to forward herewith, for transmission to Congress, estimate of appropriation ($23,750), for battle lines and sites for tablets at Antietam, required for the use of the War Department for the fiscal year ending June 30, 1894.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SECRETARY OF THE TREASURY.

WAR DEPARTMENT,
QUARTERMASTER-GENERAL'S OFFICE,
Washington, D. C., December 9, 1892.

SIR: I have the honor to inclose herewith estimate of appropriation required in the fiscal year ending June 30, 1894, for "Battle lines and sites for tablets at Antietam," as follows:

For the purchase of fifty additional tablets, and transporting and setting up the same	$5,750
Purchase of fifty additional sites for tablets	2,500
Salaries of board, including office rent, hire of vehicles etc	6,000
Condemnation of land and acquiring title to same	500
Pay of engineer for surveying land and pay of draftsman for making maps of battlefield	1,000
For the purchase of land for roadway, from a point on the Sharpsburg and Hagerstown turnpike to a point on the Sharpsburg and Boonsboro turnpike, said land being known as the "Bloody Lane," or "Sunken Road," and fencing and repairing same	8,000
Total	23,750

Very respectfully,

R. N. BATCHELDER,
Quartermaster-General, U. S. Army.

The SECRETARY OF WAR.

Estimates of appropriations required for the service of the fiscal year ending June 30, 1894, by the War Department.

General object. (Title of appropriation.) Detailed objects of expenditure and explanations.	Total amount to be appropriated under each head of appropriation.	Amount appropriated for the current fiscal year ending June 30, 1890.
Battle lines and sites for tablets at Antietam— For continuing the work of surveying, locating, and preserving the lines of battle of the Army of the Potomac, and of the Army of Northern Virginia, at Antietam, and for locating and marking the positions of the forty-three different commands of the Regular Army engaged in the battle of Antietam, and for purchase of sites for tablets for marking the same, and for the purchase of roadway to tablets, as follows: For the purchase of fifty additional tablets, and transporting and setting up same; purchase of fifty additional sites for tablets; salaries of board, including office rent, hire of vehicles and mileage, and for the condemnation of the land and acquiring title to the same and for the purchase of land for roadway from a point on the Sharpsburg and Hagerstown turnpike to a point on the Sharpsburg and Boonsboro turnpike, said land is known as the "Bloody Lane" or "Sunken Road," and for repairing and fencing in said roadway: *Provided*, That the Secretary of War is authorized to supply at Antietam, such number of cannon and cannon balls as his judgment may approve, and which can be spared, for the purpose of marking the positions of the different commands engaged in the battle of Antietam. *R. N. Batchelder, Quartermaster-General.* Act of August 5, 1892, Vol. 27, p. 377, sec. 1	$23,750	$16,310

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. DOC. No. 124.

CHIPPEWA INDIANS IN MINNESOTA.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING

A copy of a letter from the Chief of Engineers, recommending that the act of Congress entitled "An act for the relief and civilization of the Chippewa Indians, in the State of Minnesota," be amended.

DECEMBER 13, 1892.—Referred to the Committee on Indian Affairs and ordered to be printed.

WAR DEPARTMENT,
Washington, December 9, 1892.

SIR: I have the honor to inclose a copy of a letter from the Chief of Engineers, addressed to me on January 7, 1892, recommending for the reasons therein given that the act of Congress approved January 14, 1889, entitled "An act for the relief and civilization of the Chippewa Indians in the State of Minnesota" (25 Stats., 642), be amended so as to provide that the Indian lands subject to overflow by the construction and operation of reservoirs at the head waters of the Mississippi River, enumerated in inclosure to this letter, shall at all times remain subject to the right of the United States to construct and maintain dams for the purpose of creating reservoirs in aid of navigation, etc., and to accomplish which he submits for the consideration of Congress the inclosed draft of a bill.

The Chief of Engineers in submitting this draft states that if it is enacted into law a new and revised list of the lands to be affected by it would be carefully prepared in his office for file in the General Land Office of the Department of the Interior, as it is probable that a number of changes would be made in the list of lands now submitted.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington, D. C., January 7, 1892.

SIR: When the construction of reservoirs at the head waters of the Mississippi River was undertaken by the United States for the improvement of navigation, it was known that certain lands situated within the Chippewa Indian Reservation, in the State of Minnesota, would be subject to overflow, and consequent damage, as a result of the construction and maintenance of these reservoirs. These damages were appraised by commissioners appointed in accordance with law for that purpose, and by act of Congress approved August 19, 1890, the sum of $150,000 was appropriated to pay the Chippewa Indians in full for all claims for damages sustained by them on account of said reservoirs.

The act of Congress approved January 14, 1889, provides for the transfer of these Indian lands to the United States and for the disposal thereof to private citizens under the provisions of the homestead law. The act contains no provision to preclude claims for damages on the part of persons who may purchase the land under the statutory provisions, and such purchasers would hold the title, so obtained, without qualification and with nothing to restrain them from claiming damages for any loss suffered by reason of the operation and maintenance of dams and reservoirs. As the Indian owners of these lands have already been paid in full for the damages inflicted, it is important that proper precautions be taken to avoid incurring any liability for the same damages to the future purchasers of the lands. It appears, therefore, to be necessary that Congress, by further legislation, should provide that when these Indian lands are disposed of, under the provisions of the act of January 14, 1889, the title granted by the United States shall convey to the holder no right to claim remuneration for damages resulting from the construction, operation, and maintenance by the Government of dams and reservoirs at the head waters of the Mississippi River and its tributaries.

A list of these lands is submitted herewith with recommendation that it be transmitted to Congress with request that the act of January 14, 1889, entitled "An act for the relief and civilization of the Chippewa Indians in the State of Minnesota" be so amended that the lands enumerated in this list shall at all times remain subject to the right of the United States to construct and maintain dams for the purpose of creating reservoirs in aid of navigation, and no claim or right of compensation shall accrue from the overflowing of said lands on account of the construction and maintenance of such dams and reservoirs.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brigadier-General, Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

Whereas an act of Congress entitled "An act for the relief and civilization of the Chippewa Indians in the State of Minnesota," approved January fourteenth, eighteen hundred and eighty-nine, provides for the cession to the United States of certain lands belonging to the Chippewa Indians, in the State of Minnesota, and further provides for the sale and disposal of the said lands by the United States in a manner fully set forth and described in the said act; and

Whereas certain parcels of the said lands have been damaged and are liable

to damage by overflow by reason of the construction, operation, and maintenance by the United States of dams and reservoirs, in aid of navigation, at the head waters of the Mississippi River: Therefore,

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all the lands thus damaged and liable to damage by overflow shall at all times remain subject to the right of the United States to construct and maintain dams for the purpose of creating reservoirs in aid of navigation, and no claim or right of compensation shall accrue from the overflowing of said lands on account of the construction and maintenance of such dams and reservoirs.

SEC. 2. That the Secretary of War shall furnish the Commissioner of the General Land Office a list of such lands, with the particular tracts appropriately described, and in the disposal of each and every one of said tracts, whether by sale, by allotment in severalty to individual Indians, or otherwise, under the provision of the aforementioned act of Congress of January fourteenth, eighteen hundred and eighty-nine, the provisions of the above section one of this act shall enter into and form a part of the contract of purchase or transfer of title.

List of Indian lands subject to overflow by the construction and operation of reservoirs at head waters of Mississippi River.

[All townships north, and ranges west of fifth principal meridian.]

Section.	Township.	Range.	Part of section.	Section.	Township.	Range.	Part of section.
19	147	26	Lots 11, 12.	27	147	27	All.
19	147	26	SE. ¼ SE. ¼.	28	147	27	Lots 1, 2, 3, 4, 5, 6, 7.
20	147	26	SW. ¼ SW. ¼.	29	147	27	SW. ¼.
29	147	26	W. ½ NW. ¼.	30	147	27	SE. ¼.
30	147	26	E. ½.	30	147	27	SE. ¼ NE. ¼.
30	147	26	Lots 1, 2, 6, 7, 12, 11, 10.	30	147	27	E. ½ SW. ¼.
31	147	26	Lots 2, 3, 4, 5, 6, 7, 8.	30	147	27	Lots 1, 2, 3, 4.
3	146	26	SW. ¼ NE. ¼.	31	147	27	All.
3	146	26	S. ½ NW. ¼.	32	147	27	Lots 1, 2, 3, 4, 5.
3	146	26	W. ½ SE. ¼.	32	147	27	E. ½ NW. ¼.
3	146	26	SE. ¼ SE. ¼.	33	147	27	All.
3	146	26	N. ½ SW. ¼.	34	147	27	All.
3	146	26	Lots 5, 6.	35	147	27	Lots 1, 2, 3, 4.
4	146	26	S. ½ NE. ¼.	35	147	27	NE. ¼ NE. ¼.
4	146	26	SE. ¼.	36	147	27	Lots 1, 2, 3, 4.
5	146	26	SW. ¼.	2	146	27	Lots 2, 3, 4, 5, 6, 7, 8, 9.
5	146	26	S. ½ NW. ¼.	2	146	27	SE. ¼ NE. ¼.
5	146	26	Lots 3, 4.	3	146	27	Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
6	146	26	Lots 1, 2, 3, 4.	3	146	27	SE. ¼ SW. ¼.
6	146	26	SE. ¼ NW. ¼.	4	146	27	Lots 1, 2, 3, 4, 5, 6.
6	146	26	S. ½ NE. ¼.	10	146	27	Lots 1, 2, 3, 4.
6	146	26	SE. ¼.	10	146	27	NE. ¼ SE. ¼.
7	146	26	NE. ¼ NE. ¼.	11	146	27	Lots 1, 2, 3, 4, 5.
7	146	26	SE. ¼.	11	146	27	SE. ¼ SW. ¼.
7	146	26	Lot 9.	11	146	27	S. ½ SE. ¼.
8	146	26	N. ½ and N. ½ S. ½.	13	146	27	Lots 1, 2, 3, 4.
8	146	26	SW. ¼ SW. ¼.	13	146	27	W. ½ SE. ¼.
8	146	26	SE. ¼ SE. ¼.	14	146	27	Lots 1, 2, 3.
9	146	26	W. ½ SW. ¼.	15	146	27	All.
9	146	26	NW. ¼.	16	146	27	All.
9	146	26	N. ½ NE. ¼.	20	146	27	Lots 1, 2.
10	146	26	Lots 1, 2, 3, 4, 5, 6, 7, 8.	21	146	27	All.
10	146	26	SE. ¼ NE. ¼.	22	146	27	All.
10	146	26	W. ½ SE. ¼.	23	146	27	Lot 1.
10	146	26	S. ½ SW. ¼.	24	146	27	Lots 2, 3, 4, 5, 6, 7.
15	146	26	W. ½ NE. ¼.	24	146	27	NW. ¼ NE. ¼.
15	146	26	E. ½ NW. ¼.	25	146	27	Lots 1, 3, 4.
18	146	26	NW. ¼ NE. ¼.	26	146	27	Lots 1, 2, 3, 4, 5, 6, 7, 8.
18	146	26	Lot 3.	26	146	27	SW. ¼ SE. ¼.
19	147	27	Lot 4.	27	146	27	All.
21	147	27	NE. ¼ SE. ¼.	28	146	27	SE. ¼ SE. ¼.
21	147	27	Lot 3.	28	146	27	N. ½ SE. ¼.
22	147	27	Lots 1, 2, 3.	28	146	27	NE. ¼.
23	147	27	SE. ¼ SE. ¼.	28	146	27	E. ½ NW. ¼.
24	147	27	SW. ¼ SW. ¼.	29	146	27	NE. ¼ NE. ¼.
25	147	27	NW. ¼ NW. ¼.	29	146	27	Lots 1, 2, 3, 4.
25	147	27	W. ½ SW. ¼.	31	146	27	Lots 1, 2, 3.
25	147	27	Lots 1, 2, 3.	31	146	27	SE. ¼ SE. ¼.
26	147	27	E. ½ E. ½.	32	146	27	Lot 1.
26	147	27	NW. ¼ SE. ¼.	32	146	27	S. ½ SW. ¼.
26	147	27	Lots 1, 2, 3.	32	146	27	SW. ¼ SE. ¼.

List of Indian lands subject to overflow by the construction and operation of reservoirs at head waters of Mississippi River—Continued.

Section.	Township.	Range.	Part of section.
34	146	27	NE. ¼ NW. ¼.
34	146	27	NW. ¼ NE. ¼.
34	146	27	E. ½ NE. ¼.
35	146	27	W. ½ NW. ¼.
5	145	27	Lots 2, 3, 4.
5	145	27	S. ½ NW. ¼.
5	145	27	W. ½ SW. ¼.
6	145	27	All.
7	145	27	All.
8	145	27	All.
17	145	27	N. ½ and SW. ¼.
18	145	27	All.
19	145	27	W. ½.
19	145	27	W. ½ NE. ¼.
19	145	27	NE. ¼ NE. ¼.
10	147	28	E. ½ SE. ¼.
11	147	28	SW. ¼.
11	147	28	SW. ¼ SE. ¼.
14	147	28	W. ½ and SE. ¼.
14	147	28	W. ½ NE. ¼.
14	147	28	SE. ¼ NE. ¼.
17	147	28	Lots 2, 3, 4, 5, 6, 7.
18	147	28	Lots 1, 10.
19	147	28	Lots 1, 2, 3, 5, 6, 7, 8, 9, 10.
19	147	28	NE. ¼ SE. ¼.
19	147	28	SW. ¼ SE. ¼.
20	147	28	Lots 1, 2, 3, 4, 5.
20	147	28	NE. ¼ SW. ¼.
23	147	28	All.
24	147	28	S. ½ and S. ½ N. ½.
25	147	28	W. ½ W. ½.
25	147	28	SE. ¼ SW. ¼.
25	147	28	E. ½ NE. ¼ and SE. ¼.
26	147	28	All.
27	147	28	SE. ¼ SE. ¼.
27	147	28	SW. ¼ SW. ¼.
28	147	28	S. ½ SE. ¼.
28	147	28	N. ½ SW. ¼.
28	147	28	Lots 1, 2.
28	147	28	SW. ¼ NW. ¼.
29	147	28	Lots 1, 2, 3, 4, 5, 6, 7, 8, 9.
29	147	28	NW. ¼ NW. ¼.
29	147	28	S. ½ NE. ¼.
29	147	28	SW. ¼ SW. ¼.
29	147	28	SW. ¼ SE. ¼.
30	147	28	All.
31	147	28	All.
32	147	28	All.
33	147	28	All.
34	147	28	Lots 1, 2, 3, 4, 5, 6, 7.
34	147	28	NW. ¼ NW. ¼.
34	147	28	SE. ¼ NW. ¼.
35	147	28	All.
36	147	28	All.
5	146	28	All.
6	146	28	All.
7	146	28	All.
8	146	28	All.
17	146	28	All.
18	146	28	All.
19	146	28	All.
20	146	28	All.
30	146	28	All.
7	145	28	All.
12	145	28	All.
13	145	28	All.
17	145	28	All.
18	145	28	Lots 1, 2, 5, 6, 7; NE. ¼ SW. ¼, and S. ½ SE. ¼.
19	145	28	E. ½ NE. ¼.
20	145	28	Lots 1, 2, 3; NW. ¼ NW. ¼; S. ½ NW. ¼; NE. ¼ SW. ¼; S. ½ SW. ¼; SE. ¼.
21	145	28	All.
22	145	28	All.
23	145	28	All.
24	145	28	All.
25	145	28	NW. ¼; W. ½ NE. ¼; NE ¼ NE. ¼; N. ½ SW. ¼.
26	145	28	Lots 1, 2; N. ½ NE. ¼; SE. ¼ NE. ¼; S. ½ NW. ¼.
27	145	28	Lots 1, 2; NW. ¼; S. ½. NE. ¼.
29	145	28	N. ½ NW. ¼; N. ½ SE. ¼; NE. ¼.
24	147	29	Lots 7, 8, 9, 10, 11, 12.
25	147	29	Lots 1, 2, 3, 4; SE. ¼.
36	147	29	NE. ¼; E. ½ SE. ¼.
1	146	29	Lots 1, 2; S. ½ NE. ¼; S. ½.
2	146	29	S. ½ SE. ¼; SW. ¼ SW. ¼.
3	146	29	SE. ¼ SE. ¼; W. ½ SE. ¼; E. ½ SW. ¼; NW. ¼ SW. ¼; S. ½ NW. ¼.
10	146	29	Lots 1, 2, 3; N. ½ NE. ¼.
11	146	29	NE. ¼; E. ½ NW. ¼; NW. ¼ NW. ¼; Lots 1, 2, 3, 4; SE. ¼.
12	146	29	All.
13	146	29	All.
14	146	29	All.
19	146	29	Lots 3, 4, 5; NE. ¼ SW. ¼; SE. ¼.
20	146	29	NW. ¼ SW. ¼; S. ½ SW. ¼.
23	146	29	Lots 1, 2, 3, 4.
24	146	29	All.
25	146	29	All.
26	146	29	Lots 1, 2; E. ½ SE. ¼; SW. ¼ SE. ¼.
28	146	29	Lot 1.
29	146	29	W. ½ and SE. ¼.
30	146	29	All.
31	146	29	Lots 1, 2, 3, 4, 5; NE. ¼ NW. ¼; NW. ¼ NE. ¼.
32	146	29	Lots 1, 2, 3, 4, 5; NW. ¼ NE. ¼; NW. ¼ NW. ¼; Lots 1, 2, 3, 4; SE. ¼.
36	146	29	All.
1	145	29	All.
2	145	29	All.
3	145	29	NE. ¼ SE. ¼.
6	145	29	W. ½ NW. ¼.
11	145	29	E. ½ NW. ¼; NE. ¼; N. ½ SE. ¼; SE. ¼ SE. ¼.
12	145	29	All.
13	145	29	N. ½ N. ½.
19	147	30	Lots 3, 4.
21	147	30	Lot 3; SE. ¼ SE. ¼.
22	147	30	Lots 5, 6, 7; SW. ¼ SE. ¼.
26	147	30	Lots 1, 2.
27	147	30	Lots 1, 2, 3, 4, 5, 6, 7, 8; NW. ¼ NE. ¼; NE. ¼ NW. ¼.
28	147	30	SE. ¼.
29	147	30	S. ½ SW. ¼; SW. ¼ SE. ¼.
30	147	30	Lots 1, 2, 3, 4; SE. ¼ NW. ¼; E. ½ SW. ¼; SE. ¼ SE. ¼.
31	147	30	All.
32	147	30	All.
33	147	30	All.
34	147	30	All.
35	147	30	All.
36	147	30	W. ½ W. ½.
1	146	30	Lots 4, 5, 6; W. ½ SW. ¼.
2	146	30	N. ½; S. ½ SW. ¼; SW. ¼ SE. ¼; E. ½ SE. ¼.
3	146	30	All.
4	146	30	S. ½ NE. ¼; NE. ¼ SE. ¼; lots 1, 2, 3, 4, 5; SE. ¼ NW. ¼; NE. ¼ SW. ¼; SW. ¼ SW. ¼.
5	146	30	All.
6	146	30	All.
7	146	30	Lots 1, 2, 3, 4, 5, 6, 7, 13, 12, 14, 15, 16.
8	146	30	Lots 3, 4, 7, 8, 9; SE. ¼ SE. ¼.
9	146	30	SW. ¼ SW. ¼.

List of Indian lands subject to overflow by the construction and operation of reservoirs at head waters of Mississippi River—Continued.

Section.	Township.	Range.	Part of section.
10	146	30	Lots 1, 4; SE. ¼ NE. ¼.
11	146	30	Lots 1, 2, 3, 4, 5, 6, 7, 10, 11, 12; S. ½ NW. ¼; SW. ¼ SE. ¼; E. ½ SE. ¼.
12	146	30	Lots 3, 4.
16	146	30	Lots 1, 2, 3, 4; NW. ¼ NW. ¼.
17	146	30	All.
18	146	30	All.
21	146	30	Lots 1, 2, 3, 4, 5, 6.
22	146	30	Lots 1, 2, 3, 4, 5, 6, 7, 8, 9.
23	146	30	Lots 1, 2, 3, 4, 5, 6, 7, 8, 9.
24	146	30	Lots 1, 2, 3, 4, 5, 6, 7.
25	146	30	Lots 1, 2, 3.
28	146	30	Lots 1, 2, 3, 4; NW. ¼ SW. ¼; NE. ¼ SE. ¼.
29	146	30	All.
32	146	30	All.
33	146	30	Lots 1, 2, 3, 4, 5.
36	146	30	E. ½ E. ½.
1	145	30	NE. ¼ NE. ¼.
4	145	30	Lots 2, 3, 4. 5.
5	145	30	All.
6	145	30	All.
7	145	30	All.
8	145	30	Lots 1, 2, 3, 4.
9	145	30	Lot 1.
17	145	30	Lot 1.
18	145	30	Lots 1, 2, 3, 4, 5, 6.
19	145	30	Lots 1, 2, 3, 4.
30	145	30	Lots 1, 2.
19	147	31	Lots 1, 2, 3, 7; SE. ¼ NW. ¼; S. ½ NE. ¼; E. ½ SW. ¼; SE. ¼.
20	147	31	Lots 4, 7, 8, 9; SW. ¼ NW. ¼; NE. ¼ SW. ¼; W. ½ SW. ¼.
21	147	31	Lots 6, 7; SW. ¼ SE. ¼.
23	147	31	SW. ¼ NW. ¼; W. ½ SW. ¼; SE. ¼ SW. ¼; S. ½ SE. ¼.
24	147	31	Lots 1, 2, 3, 4, 5.
25	147	31	All.
26	147	31	N. ½ N. ½.
28	147	31	All.
29	147	31	All.
30	147	31	E. ½; E. ½ NW. ¼.
31	147	31	N. ½ NE. ¼; SE. ¼ NE. ¼.
31	147	31	Lots 5, 6, 7.
32	147	31	All.
33	147	31	All.
34	147	31	Lots 1, 2, 3, 4, 5, 6.
36	147	31	S. ½ NE. ¼; SE. ¼.
3	146	31	Lots 1, 2, 3, 4, 5.
4	146	31	Lots 1, 2, 3, 4, 5.
5	146	31	Lots 1, 2, 3, 4, 5; NW. ¼ SE. ¼; SW. ¼ SW. ¼.
6	146	31	Lots 1, 2; SW. ¼ NE. ¼; E. ½ SE. ¼.
7	146	31	Lots 3, 4, 5, 6, 7, 8; E. ½ SW. ¼.
8	146	31	Lots 1, 2, 3, 4.
12	146	31	Lots 1, 2, 3, 4, 5.
13	146	31	All.
14	146	31	Lots 1, 2.
17	146	31	Lots 1, 2, 3, 4.
18	146	31	All.
19	146	31	Lots 1, 2, 3, 4, 7.
20	146	31	Lots 1, 2, 3, 4.
21	146	31	Lot 1; SW. ¼ SW. ¼; SW. ¼ SE. ¼.
22	146	31	Lots 3, 4.
23	146	31	Lots 1, 3, 4, 5, 6.
24	146	31	All.
25	146	31	All.
26	146	31	All.
27	146	31	All.
28	146	31	All.
29	146	31	All.
30	146	31	Lots 1, 2, 3, 4, 5, 6, 7; NE. ¼ SW. ¼.
32	146	31	Lots 1, 2, 3, 4; SE. ¼ NW. ¼.
33	146	31	Lots 1, 2, 3, 4, 5.
34	146	31	All.
35	146	31	NW. ¼ NW. ¼; lots 1, 2, 3, 4, 5, 6, 7, 8.
36	146	31	All
1	145	31	All.
2	145	31	All.
3	145	31	Lots 1, 3, 4, 5.
6	145	31	Lots 5, 6, 7.
7	145	31	All.
8	145	31	SW. ¼ SW. ¼.
10	145	31	Lots 1, 2, 3, 4; NE. ¼ SW. ¼.
11	145	31	All.
12	145	31	All.
13	145	31	All.
14	145	31	Lots 1, 2, 3, 4, 5, 6; NW. ¼ NE. ¼.
15	145	31	Lots 1, 2, 3, 4, 5; SW. ¼ NE. ¼; SW. ¼ SW. ¼
16	145	31	S. ½.
17	145	31	N. ½ S. ½; SW. ¼ NE. ¼; W. ½ NW. ¼; SE ¼ NW. ¼.
18	145	31	N. ½ SE. ¼; E. ½ NW. ¼; NE. ¼.
22	145	31	Lots 1, 2, 3, 4; NW. ¼ NW. ¼.
25	145	31	Lots 1, 2.
27	145	31	All.
28	145	31	E. ½.
34	145	31	Lots 1, 2, 3, 4.
35	145	31	Lots 1, 2, 3, 4; SE. ¼ SW. ¼; SW. ¼ SE. ¼.
36	145	31	Lots 1, 2.
2	144	31	NW. ¼ NW. ¼.
1	145	32	Lots 3, 4, 5, 6.
12	145	32	Lot 1.
14	144	26	Lots 3, 4.
19	144	26	S. ½ SE. ¼; SE. ¼ SW. ¼.
21	144	26	SE. ¼ SE. ¼.
22	144	26	Lots 1, 2; E. ½ SW. ¼; NW. ¼ SE. ¼; SW. ¼ SW. ¼; SE. ¼ NW. ¼; SE. ¼ NE. ¼.
23	144	26	Lots 2, 3.
27	144	26	Lots 2, 3.
28	144	26	Lots 1, 2, 3, 4, 5; NW. ¼ NE. ¼.
29	144	26	W. ½ NW. ¼; SE. ¼ NW. ¼; SW. ¼ NE. ¼; S. ½ SE. ¼; SW. ¼; NW. ¼ SE. ¼.
30	144	26	All.
31	144	26	Lots 1, 3, 4, 5, 6; NW. ¼ NE¼; E. ½ NW. ¼.
32	144	26	Lots 1, 2, 3, 4; NE. ¼ NW. ¼; NW. ¼ NE. ¼.
33	144	26	Lot 1.
15	144	27	SW. ¼ NE. ¼; SE. ¼ NW. ¼; NW. ¼ SE. ¼; E. ½ SW. ¼; SW. ¼ SW. ¼.
16	144	27	SE. ¼ NW. ¼; NE. ¼ SW. ¼; SE. ¼.
21	144	27	E. ½ NE. ¼.
22	144	27	NW. ¼; N. ½ SW. ¼; S. ½ NE. ¼; SE. ¼.
23	144	27	NW. ¼ SW. ¼; S. ½ SW. ¼.
24	144	27	SW. ¼ SW. ¼.
25	144	27	N. ½; SE. ¼; N. ½ SW. ¼.
26	144	27	N. ½.
27	144	27	S. ½ of S. ½.
28	144	27	SE. ¼ SE. ¼.
33	144	27	E. ½.
34	144	27	All.
35	144	27	All.
36	144	27	Lots 1, 2, 3, 4; SE. ¼ NE. ¼.
2	143	27	Lot 6.
3	143	27	Lots 1, 5, 6, 7.
4	143	27	Lots 5, 6, 7, 8.
26	56	27	W. ½.
27	56	27	All.
28	56	27	All.

List of Indian lands subject to overflow by the construction and operation of reservoirs at head waters of Mississippi River—Continued.

Section.	Township.	Range.	Part of section.
33	56	27	Lot 2; NE. ¼.
34	56	27	W. ½ NW. ¼; NE. ¼ NW. ¼.
30	145	25	Lots 3, 4; SE. ¼ SW. ¼.
31	145	25	E. ½ NW. ¼; lots 1, 2; S. ½.
32	145	25	S. ½; SW ¼ NW. ¼.
33	145	25	SW. ¼; S. ½ SE. ¼.
34	145	25	S. ½ SW. ¼; SE. ¼ SE. ¼.
35	145	25	SW. ¼; W. ½ SE. ¼.
1	144	25	Lot 9.
2	144	25	Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10; NW. ¼ SW. ¼; S. ½ SW. ¼.
3	144	25	N. ½; W. ½ SW. ¼; NE. ¼ SW. ¼; NW. ¼ SE. ¼; E. ½ SE. ¼; lots 5, 7.
4	144	25	Lots 1, 2, 3, 4, 6, 7, 8, 9, 14; SE. ¼ NE. ¼; NE. ¼ SE. ¼.
5	144	25	Lots 1, 2, 3, 4, 5, 6, 7.
6	144	25	Lots 1, 3, 10.
9	144	25	Lot 1.
10	144	25	Lots 2, 4, 5, 10.
11	144	25	Lots 1, 2, 3, 4, 6, 9, 13, 14, 17.
12	144	25	Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14; W. ½ SW. ¼.
13	144	25	All.
14	144	25	Lots 1, 4, 5, 8.
23	144	25	Lots 1, 4, 5, 8
24	144	25	All.
25	144	25	Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11; E. ½ NE. ¼.
26	144	25	Lots 1, 4, 5.
35	144	25	Lots 2, 5, 8, 12, 13.
2	143	25	Lots 1, 2, 5, 6, 9, 12.
11	143	25	Lot 4.
4	145	26	Lots 5, 6, 7, 8.
5	145	26	Lots 1, 6, 7, 8.
8	145	26	SE. ¼ NE. ¼; NE. ¼ SE. ¼.
9	145	26	Lots 1, 2, 3, 4, 5, 6, 7.
10	145	26	Lots 1, 2, 3, 4; SW. ¼ NE. ¼.
14	145	26	Lots 1, 2, 3, 4; NE. ¼ NW. ¼; NW. ¼ SE. ¼.
15	145	26	Lot 1.
16	145	26	Lots 1, 2, 3, 4.
21	145	26	Lot 1; SE. ¼ NE. ¼; NE. ¼ SE. ¼.
22	145	26	Lots 1, 2.
23	145	26	Lots 1, 2, 3, 4; NE. ¼ NE. ¼.
24	145	26	W. ½ SW. ¼.
25	145	26	Lots 1, 2, 3, 4; S. ½ NE. ¼.
27	145	26	Lots 1, 2, 3, 4; SW. ¼ NW. ¼; NE. ¼ SW. ¼; SW. ¼ SE. ¼.
34	145	26	Lot 1.
35	145	26	Lots 1, 2, 3; NW. ¼ SW. ¼; SE. ¼ SW. ¼.
36	145	26	Lot 1.
1	144	26	Lots 1, 2, 3, 4; S. ½ NE. ¼.
2	144	26	Lots 1, 2, 4, 5, 6, 7, 8; NE. ¼ SW. ¼; SE. ¼ SE. ¼.
3	144	26	Lots 1, 2, 3, 4, 5, 6, 7, 8; SE. ¼ SE. ¼.
11	144	26	Lots 1, 2, 3, 4, 5, 6, 7, 8; SW. ¼ NW. ¼; NW. ¼ SE. ¼.
12	144	26	Lots 1, 2, 3, 4, 5, 6, 7, 8; N. ½ NW. ¼; SW. ¼ SW. ¼; SW. ¼ NE. ¼.
13	144	26	Lots 3, 4, 5.
13	144	32	W. ½ NW. ¼; SE. ¼ NW. ¼; S. ½.
14	144	32	Lot 1.
24	144	32	Lots 1, 2, 3, 4, 6, 7; E. ½ NW. ¼; N. ½ NE. ¼.
25	144	32	Lots 1, 4, 5, 6, 7; SE. ¼ SW. ¼.
1	143	32	SE. ¼; lots 8, 10; E. ½ SW. ¼.
12	143	32	Lot 1; NE. ¼ NW. ¼; N. ½ NE. ¼.
36	143	32	W. ½ SE. ¼; NE. ¼ SW. ¼; lots 4, 7, 8.
1	142	32	Lots 1, 11, 14, 15.
15	144	31	Lots 1, 2, 3, 4.
16	144	31	Lots 1, 2, 3.
19	144	31	Lots 2, 3, 4, 5.
20	144	31	Lots 1, 2, 3, 4, 5; S. ½ NE. ¼
21	144	31	Lots 1, 2, 3, 4, 5; W. ½ NW. ¼; NW. ¼ SW. ¼; E. ½ SW. ¼; SW. ¼ NE. ¼.
22	144	31	Lots 1. 2.
28	144	31	Lots 1, 2, 3, 4, 5, 6; E. ½ W. ½.
29	144	31	Lots 1, 2, 3, 4, 5; SE. ¼ NE. ¼; NE. ¼ SE. ¼.
30	144	31	Lots 1, 2, 3, 4.
32	144	31	Lots 1, 2, 3, 4, 5, 6; W. ½ SE. ¼; SW. ¼ NE. ¼.
33	144	31	Lots 1, 2, 3, 4: E. ½ W. ½; NW. ¼ NW. ¼.
2	143	31	Lots 5, 6, 7; SW. ¼ NW. ¼.
3	143	31	Lots 3, 4, 5; S. ½ N. ½; SW. ¼; W. ½ SE. ¼; NE. ¼ SE. ¼.
4	143	31	All.
5	143	31	All.
6	143	31	Lots 1, 5, 6, 7, 8; SE. ¼ NW. ¼; S. ½ NE. ¼; E. ½ SW. ¼; NW. ¼ SE. ¼.
7	143	31	All.
8	143	31	Lots 1, 2, 3, 4; NE. ¼ NE. ¼.
9	143	31	Lots 1, 2, 3, 4, 5; N. ½ NW. ¼; NW. ¼ NE. ¼.
10	143	31	All.
11	143	31	Lots 1, 2, 3, 4.
14	143	31	Lots 1, 2, 3, 4.
15	143	31	All.
16	143	31	Lots 1, 2, 3, 4, 5.
17	143	31	Lots 2, 3.
18	143	31	Lots 1, 2.
20	143	31	Lots 1, 2, 3, 4.
21	143	31	All.
22	143	31	All.
23	143	31	Lots 1, 2, 3, 4.
25	143	31	Lots 1, 2, 3, 4.
26	143	31	Lots 1, 2, 3, 4, 5, 6.
27	143	31	All.
28	143	31	All.
29	143	31	NE. ¼ SE. ¼; SE. ¼ NE ¼; lot 1.
32	143	31	Lots 1, 2, 3, 4, 5.
33	143	31	All.
34	143	31	All
36	143	31	All.
1	142	31	Lots 1, 2, 3, 4.
2	142	31	Lots 1, 2, 3, 4, 5; SE. ¼ NE. ¼; N. ½ SE. ¼; SW. ¼ SE. ¼; SE. ¼ SW. ¼.
3	142	31	All.
4	142	31	All.
5	142	31	Lots 5, 6, 7; SE. ¼ SE. ¼.
6	142	31	Lots 5, 6, 7, 8.
8	142	31	Lot 1.
9	142	31	Lot 1.
10	142	31	All.
11	142	31	Lots 1, 2, 3.
12	142	31	Lots 1, 2, 3, 4, 5, 6; NW. ¼ NE ¼.
13	142	31	Lots 1, 2, 3.
14	142	31	Lots 1, 2, 3, 4.
23	142	31	Lot 1.
24	142	31	All.
25	142	31	Lots 1, 2, 3, 4, 5.
36	142	31	Lots 1, 2, 3, 4.
1	141	31	Lots 2, 3, 4.
2	141	31	Lots 1, 2, 3, 4, 10.
11	141	31	Lots 1, 2, 4, 5, 6, 7; E. ½ SE. ¼.
12	141	31	Lot 1; S. ½ NW. ¼; SW. ¼.
13	141	31	Lot 4.
14	141	31	Lot 1.
1	144	30	Lot 4; W. ½ SW. ¼; SW. ¼ NW. ¼.
2	144	30	E. ½ SE. ¼.

List of Indian lands subject to overflow by the construction and operation of reservoirs at head waters of Mississippi River—Continued.

Section.	Township.	Range.	Part of section.
11	144	30	E. ½ NE. ¼; SE. ¼.
12	144	30	NW. ¼ NW. ¼.
13	144	30	W. ½ NW. ¼; lot 1; NW. ¼ SW. ¼.
14	144	30	NE. ¼; lots 1, 2; W. ½ SE. ¼.
23	144	30	Lots 1, 2, 3, 4; W. ½ E. ½.
24	144	30	Lots 1, 2, 3, 4, 5.
25	144	30	All.
26	144	30	Lots 1, 2, 3, 4.
34	144	30	Lots 1, 2, 3, 4.
35	144	30	All.
36	144	30	All.
1	143	30	Lots 1, 2, 3, 4, 5; NE. ¼ SE. ¼; S. ½ SE. ¼; SE. ¼ SW. ¼.
2	143	30	All.
3	143	30	All.
4	143	30	Lots 5, 6, 7.
7	143	30	Lots 9, 10.
8	143	30	Lots 1, 2, 3, 4.
9	143	30	All.
11	143	30	All.
12	143	30	All.
14	143	30	All.
15	143	30	All.
18	143	30	Lots 1, 6, 7, 11.
19	143	30	All.
20	143	30	All.
22	143	30	All.
23	143	30	All.
31	143	30	Lots 1, 2, 3, 4, 5, 6, 8, 9, 10; SE. ¼ SW. ¼.
32	143	30	All.
3	142	30	All.
4	142	30	All.
6	142	30	All.
7	142	30	All.
8	142	30	All.
9	142	30	Lots 1, 2, 3, 4, 5.
10	142	30	Lots 1, 2, 3, 4, 5.
15	142	30	Lots 1, 2, 3, 4.
16	142	30	S. ½ S. ½; N. ½ SE. ¼; NE. ¼ SW. ¼.
17	142	30	Lots 1, 2, 3, 4.
18	142	30	All.
19	142	30	Lots 1, 2, 3, 4, 5, 6.
20	142	30	Lots 1, 2, 3, 4; SE. ¼ SW. ¼; SE. ¼; S. ½ NE. ¼; NE. ¼ NE. ¼.
21	142	30	W. ½; NW. ¼ SE. ¼; W. ½ NE. ¼; NE. ¼ NE. ¼.
22	142	30	All.
27	142	30	All.
28	142	30	N. ½ NW. ¼.
29	142	30	NE. ¼; NE. ¼ NW. ¼.
30	142	30	Lot 1.
34	142	30	Lots 1, 2, 3, 4, 5.
35	142	30	Lots 1, 2, 3, 4.
36	142	30	Lots 1, 2, 3, 4, 5.
1	141	30	Lot 1.
2	141	30	Lots 3, 4, 5, 6.
3	141	30	Lots 1, 2, 3, 4, 5.
1	144	29	W. ½ W. ½; SE. ¼ SE. ¼.
2	144	29	E. ½ E. ½.
11	144	29	SE. ¼ SE. ¼.
12	144	29	All.
13	144	29	Lots 1, 2, 3, 4; E. ½ NW. ¼; W. ½ SW. ¼.
14	144	29	SE. ¼ SE. ¼.
22	144	29	E. ½ SE. ¼.
23	144	29	Lots 1, 2, 3, 4, 5, 6.
24	144	29	All.
27	144	29	All.
28	144	29	E. ½ NE. ¼; NE. ¼ SE. ¼; lot 1
32	144	29	SE. ¼.
33	144	29	All.
5	143	29	Lots 1, 2, 5, 6, 7.
6	143	29	E. ½ SE. ¼; lots 6, 7; SW. ¼ SE. ¼.
	143	29	All.
	143	28	All.
	143	28	All.
	143	28

List of Indian lands subject to overflow by the construction and operation of reservoirs at head waters of Mississippi River—Continued.

Section.	Township.	Range.	Part of section.	Section.	Township.	Range.	Part of section.
20	142	28	All.	9	142	27	Lots 2, 4.
21	142	28	All.	16	142	27	Lots 2, 3, 4.
22	142	28	All.	17	142	27	Lot 1.
23	142	28	Lots 1, 2, 3, 4; SW. ¼ NW. ¼; SW. ¼.	18	142	27	Lots 1, 2, 3, 4, 5, 6; N. ½ NE. ¼.
24	142	28	Lots 1, 2, 3, 4.	19	142	27	All.
25	142	28	Lots 1, 2.	20	142	27	Lots 1, 2, 3, 4, 5, 6, 7, 8, 9.
26	142	28	NW. ¼.	21	142	27	Lots 5, 6.
27	142	28	N. ½.	27	142	27	N. ½ NW. ¼.
28	142	28	NE. ¼.	28	142	27	Lots 7, 8, 9, 10, 11.
29	142	28	Lots 1, 2, 3, 4; N. ½ SW. ¼.	29	142	27	Lots 1, 2, 3, 4, 5, 6, 7.
30	142	28	Lots 1, 2, 3, 4, 5, 6; N. ½ SE. ¼; NE. ¼ SW. ¼.	30	142	27	All.
31	142	28	Lots 1, 3, 4.	31	142	27	Lots 1, 2; W. ½ NE. ¼; E ½ NW. ¼; N. ½ SE. ¼.
31	143	27	Lots 5, 6, 7, 8, 9, 10; NE. ¼ SW. ¼; SE. ¼.	32	142	27	Lots 1, 2, 3, 4, 5, 6, 7, 8; SE. ¼ SE. ¼.
32	143	27	Lots 6, 7, 8; W. ½ SW. ¼.	33	142	27	Lots 9, 10, 11; W. ½ SW. ¼.
5	142	27	Lots 2, 3, 4, 7, 8; E. ½ SW. ¼; SW. ¼ NW. ¼.	4	141	27	NW. ¼ NW. ¼.
8	142	27	Lots 2, 3, 5; SW. ¼ NE. ¼.	5	141	27	NE. ¼ NE. ¼.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { Ex. Doc. No. 125.

LYNCH RIVER, SOUTH CAROLINA.

LETTER

FROM

THE SECRETARY OF WAR,

TRANSMITTING.

With a letter from the Chief of Engineers, report of the examination of Lynch River, South Carolina.

DECEMBER 14, 1892.—Referred to the Committee on Rivers and Harbors and ordered to be printed.

WAR DEPARTMENT,
Washington, December 13, 1892.

SIR: I have the honor to inclose herewith a letter from the Chief of Engineers dated December 12, 1892, together with a copy of a report from Capt. F. V. Abbot, Corps of Engineers, dated December 2, 1892, of a preliminary examination of Lynch River, South Carolina, made by him in compliance with the provisions of the river and harbor act of July 13, 1892.

Very respectfully,

S. B. ELKINS,
Secretary of War.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

OFFICE OF THE CHIEF OF ENGINEERS,
UNITED STATES ARMY,
Washington D. C., December 12, 1892.

SIR: I have the honor to submit the accompanying copy of report dated December 2, 1892, by Capt. F. V. Abbot, Corps of Engineers, giving the results of a preliminary examination of Lynch River, South Carolina, authorized by the river and harbor act approved July 13, 1892.

Capt. Abbot states that in his opinion Lynch River is worthy of improvement from Effingham, S. C., to deep water in Clark River for steamers, and above Effingham for a distance of about 50 miles for rafts and flatboats.

For the reasons mentioned by the local engineer, Col. Wm. P. Craighill, Corps of Engineers, the Division Engineer, concurs in the

opinion that this river is worthy of improvement by the General Government to the extent indicated in this report, and this opinion is also concurred in by this office.

Capt. Abbot estimates that a sufficiently close and accurate survey to cover the necessities of the case can be made for $600.

Very respectfully, your obedient servant,

THOS. LINCOLN CASEY,
Brig. Gen., Chief of Engineers.

Hon. S. B. ELKINS,
Secretary of War.

PRELIMINARY EXAMINATION OF LYNCH RIVER, SOUTH CAROLINA.

UNITED STATES ENGINEER OFFICE,
Charleston, S. C., December 2, 1892.

GENERAL: I have the honor to submit the following report of a personal examination of Lynch River, South Carolina, which I made on November 24 and 25, 1892, when the river was only about 1 foot above dead low water.

In my opinion this stream is worthy of improvement from Effingham, S. C., to deep water in Clark River for steamers, and above Effingham for a distance of about 50 miles for rafts and flatboats.

On the part of the river above Effingham timber rafts are now run, and a small sum judiciously spent here will greatly facilitate this traffic. For about 65 miles below Effingham the river is, with few exceptions, in fair condition for use by such steamers as now run on the Upper Waccamaw, on the Little Pedee, on the Wateree, and on the Congaree rivers. For a comparatively small expenditure this 65 miles could be put into excellent condition. From 65 to 73 miles below Effingham the river wanders through a cypress swamp, with three connections with Clark River besides its own mouth in Great Pedee River.

There appears to be depth enough in this part of the river itself, and through the lakes connecting it with Clark River, to give a good steamboat route from the good portion of Lynch River to the good portion of Clark River. By one of these connections it is almost certain that a good outlet into the Great Pedee can be secured. The Pedee mouth of Lynch River itself can not be satisfactorily improved. To wisely choose the best of the three different available routes and estimate the cost of the work a survey is absolutely necessary.

Lynch River flows through a fertile, well-cultivated section of country, which is almost entirely without railroad facilities below Effingham. There are twenty-two landings on the right bank and twenty-two landings on the left bank of this part of the river, which gives on each side an average of one landing to each 3 miles, making this river much more accessible to the land along its banks than the majority of rivers in this State. The people all along the river are anxious to have it opened for steamers.

At the time of my examination there were rafts aggregating about 1,000 logs of fine pine timber and 1,500 cross-ties waiting for a freshet to pass out of the river and into Clark River over a log jam in the extreme lower end of the river. I am told that there is a very considerable traffic now carried down the river by rafts, but I was unable to get any reliable figures as to its amount. Judging by results actually obtained on somewhat similar rivers by work which I have done in

the last four or five years, I think that an annual shipment of at least $50,000 would quickly spring up if this river were improved, and that the business would keep on increasing. The lower part of the river swamp contains immense quantities of most valuable cypress, and as soon as the mouth is opened the whole will become available for market. A large cypress-cutting saw mill on Great Pedee River, only 8 miles below the mouth of Lynch River, will afford a ready market for this timber, as it has nearly exhausted the cypress in the Great Pedee swamps, which (the cypress) lies near enough to be conveniently reached.

The river is crossed by three wooden bridges. They could be cheaply provided with draw spans, as they are already built with wide raft spans.

This river was examined January 15, 1881 (see page 1039, Annual Report Chief of Engineers, for that year), by Mr. John F. Darling, assistant engineer. My own observations on this river do not agree with Mr. Darling's. Like all the rivers in this section of the State, Lynch River can not be navigated by steamers at dead low water, but gauge observations show that there is at least 2 or 3 feet rise in the river for all but a very few weeks each year, and this low period does not generally correspond with the time when river traffic would be active. There are hardly any caving banks on the river, and decidedly less snags which would require removal than on any other river of its length I have examined in the State.

I estimate that a sufficiently close and accurate survey of the lower part of this river, to cover the necessities of the case, can be made in two months' time by a party costing $300 a month. * * *

Very respectfully, your obedient servant,

FREDERIC V. ABBOT,
Captain of Engineers.

Brig. Gen. THOMAS L. CASEY,
Chief of Engineers, U. S. A.

(Through Col. William P. Craighill, Corps of Engineers, Division Engineer, Southeast Division.)

[First indorsement.]

U. S. ENGINEER OFFICE,
Baltimore, Md., December 7, 1892.

Respectfully submitted to the Chief of Engineers.

For the reasons mentioned by the local engineer I concur in the opinion that this river is worthy of improvement by the General Government to the extent indicated by him in his report.

WM. P. CRAIGHILL,
Colonel, Corps of Engineers.

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 126.

DEFICIENCIES IN THE POSTAL SERVICE.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

Estimates of deficiencies in appropriations on account of the postal service.

DECEMBER 15, 1892.—Referred to the Committee on Appropriations and ordered to be printed.

TREASURY DEPARTMENT,
December 14, 1892.

SIR: I have the honor to transmit herewith estimates of deficiencies in appropriations on account of the postal service, payable from postal revenues, as submitted by the Sixth Auditor for the following appropriations:

Advertising, 1891	$21.12
Advertising, 1892	379.74
Postage stamps, 1891	5,126.24
Inland transportation by railroad routes, 1891	14,109.66
Inland transportation by railroad routes, 1892	332,496.53
Railway post-office car service, 1891	1,116.54
Railway post-office car service, 1892	33,024.57
Compensation of postmasters, 1891	11,579.33
Compensation of postmasters, 1892	470,116.39
Total	867,970.12

Respectfully yours,

CHARLES FOSTER,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department.

POSTAL SERVICE.

OUT OF THE POSTAL REVENUES.

Advertising (act June 30, 1890, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 295, sec. 1):		
Amount appropriated for the fiscal year for which the appropriation is required		$18,240.34
For amount to reimburse the postal revenue of the fiscal year 1891, being the amount retained by postmasters, in excess of the appropriation		4.50
F. P Glass, secretary Montgomery Advertiser (Ala.). For publication of advertisement inviting proposals for conveying the mails, once a week for six successive weeks in the Montgomery Advertiser, as per account herewith		16.62
Total advertising 1891		21.12
Postage stamps (act June 30, 1890, vol. 26, p. 208, sec. 1):		
Amount appropriated for the fiscal year for which the appropriation is required		173,000.00
American Bank Note Co. For amount withheld for want of appropriation for postage stamps, furnished during June, 1891		5,126.24
Advertising (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1; act May 13, 1892, vol. 27, p. 36, sec. 1):		
Amount appropriated for the fiscal year for which the appropriation is required		33,000.00
R. W. Patterson, jr., treasurer Chicago Tribune Co., Illinois—		
For amount of bill for publication of advertisement dated Mar. 9, 1892, inviting proposals for supplies for the Post-Office Department and postal service	$29.00	
For amount of bill for publication of advertisement dated Apr. 9, 1892, inviting proposals for furnishing the Department with registered package, tag, official, and dead-letter envelopes	25.00	
For amount of bill for publication of advertisement dated May 18, 1892, inviting proposals for furnishing jute twine	10.50	
For amount of bill for publication of advertisement dated Nov. 8, 1891, inviting proposals for furnishing the Post-Office Department with fire and burglar proof safes	15.00	
		79.50
A. H. Belo & Co., publishers Galveston News, Texas. For amount of bill for publication of advertisement inviting proposals for ocean mail service		273.24
J. Barrett, postmaster, Louisville, Ky. For advertising, undercredited in second quarter, 1892		27.00
Total advertising 1892		379.74
Inland mail transportation railroads (act June 30, 1890, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 295, sec. 1):		
Amount appropriated for the fiscal year for which the appropriation is required		21,454,572.27
Chicago, Burlington and Quincy R. R. Co., Illinois—		
For remissions route 135007, on account of third quarter, 1890	$507.35	
For remissions route 135007, on account of fourth quarter, 1890	573.53	
For remissions route 135007, on account of first quarter, 1890	595.59	
For remissions route 135007, on account of second quarter, 1890	110.29	
		1,786.76
Cleveland, Cincinnati, Chicago and St. Louis Rwy. Co., Indiana—		
For remissions route 133003, on account of second quarter, 1891	106.91	
For remissions route 133005, on account of second quarter, 1891	37.50	
For remissions route 133025, on account of second quarter, 1891	9.67	
For remissions route 133043, on account of second quarter, 1891	37.65	
		191.73
Pittsburg, Cincinnati, Chicago and St. Louis Rwy. Co., Indiana—		
For remissions route 133007, on account of second quarter, 1891	14.99	
For remissions route 133009, on account of second quarter, 1891	87.38	
For remissions route 133017, on account of second quarter, 1891	23.49	
		125.86
Atchison, Topeka and Santa Fe R. R. Co., Kansas—		
For remissions route 155006, on account of fourth quarter, 1890	64.23	
For remissions route 155006, on account of first quarter, 1891	78.25	
For remissions route 155006, on account of second quarter, 1891	81.06	
		223.54
Pennsylvania Company, Ohio. For remission route 131002, on account of second quarter, 1891		595.92
Pittsburg, Cincinnati, Chicago and St. Louis Rwy. Co., Ohio—		
For remissions route 131015, on account of first quarter, 1891	129.32	
For remissions route 131015, on account of first quarter, 1891	962.46	
For remissions route 131015, on account of second quarter, 1891	155.20	
For remissions route 131015, on account of second quarter, 1391	522.27	
For remissions route 131025, on account of second quarter, 1891	12.56	
For remissions route 131032, on account of first quarter, 1891	1,323.93	
For remissions route 131032, on account of second quarter, 1891	297.88	
		3,403.62

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Inland mail transportation railroads (act June 30, 1890, vol. 26, p. 207, sec. 1; act July 28, 1892, vol, 27, p. 295, sec. 1)—Continued.		
New York, Lake Erie and Western R. R. Co., Ohio. For remission route 131034, on account of second quarter, 1891		$312.47
Dayton and Michigan R. R. Co., Ohio—		
For remission, route No. 131023, on account third quarter, 1890	$191.61	
For remission route No. 131023, on account first quarter, 1891	43.75	
		285.36
Cleveland, Cincinnati, Chicago and St. Louis Ry. Co., Ohio. For remission route No. 131042, on account second quarter, 1891		147.09
Columbus, Findlay and Northern Ry. Co., Ohio. For transportation, route No. 131050, on account fiscal year 1891		840.44
Oregon Short Line and Utah Northern Ry. Co., Washington. For remission, route No. 171006, on account third quarter, 1890		344.67
Southern Pacific Co. (nonaided), Arizona. For remission, route No. 168001, on account first quarter, 1891		523.47
Southern Pacific Co. (nonaided), California. For remission, route No. 176001, on account second quarter, 1891		20.49
Sioux City and Pacific R. R. Co. (nonaided), Iowa. For transportation, route No. 143029, from Jan. 1 to June 30, 1891		632.74
Sioux City and Pacific R. R. Co. (aided), Iowa. For transportation on routes 143029 and 143077, from Jan. 1 to June 30, 1891, one-half the earnings on these routes suspended		4,725.50
Total railroads, 1891		14,109.66
Inland mail transportation, railroads (act March 3, 1891, vol, 26, p. 1080, sec. 1). Amount appropriated for the fiscal year for which the appropriation is required		22,550,128.31
Southern Pacific Co. (New Mexico, Arizona and California). For transportation from July 1, 1891, to June 30, 1892.		
Route 167005	$11,527.44	
Route 168001	64,042.92	
Route 176001	42,647.06	
Route 176003	58,312.12	
Route 176006	843 44	
Route 176007	424.08	
Route 176008	4,051.88	
Route 176010	31,620.88	
Route 176012	1,993.85	
Route 176013	1,211.52	
Route 176014	65,590.92	
Route 176017	1,733.28	
Route 176020	787.84	
Route 176022	13,761.12	
Route 176023	1,550.68	
Route 176024	285.52	
Route 176026	722.08	
Route 176028	4,772.12	
Route 176029	57.64	
Route 176032	1,1270.12	
Route 176035	818.64	
Route 176038	1,990.45	
		320,015.60
Sioux City and Pacific R. R. Co. (nonaided), Iowa. For transportation, route No. 143029, from July 1, 1891, to June 30, 1892	1,500.29	
Sioux City and Pacific R. R. Co. (aided), Iowa. For transportation routes 143029 and 143077 from July 1, 1891, to June 30, 1892, one-half the earnings of the aided portions of these routes suspended	10,980.64	
Total railroads 1892		332,496.53
Inland mail transportation, post-office cars (act June 30, 1890, vol. 26, p. 208, sec. 1): Amount appropriated for the fiscal year for which the appropriation is required.		2,510,000.00
Sioux City and Pacific R. R. Co. (nonaided), Iowa, for transportation route 143029, Jan. 1 to June 30, 1891		209.21
Sioux City and Pacific R. R. Co. (aided), Iowa, for transportation routes 143029 and 143029, from Jan. 1 to June 30, 1891. One-half of the earnings on the aided portions of these routes suspended		907.33
Total post-office car, 1891		1,116.54
Inland mail transportation, post-office cars (act Mar. 3, 1891, vol. 26, p. 1080, sec. 1): Amount appropriated for the fiscal year for which the appropriation is required.		2,731,000.00
Southern Pacific Co., California:		
For transportation on route 176001, July 1, 1891, to June 30, 1892	$12,146.76	
For transportation on route 176003, July 1, 1891, to June 30, 1892	7,700.85	
For transportation on route 176010, July 1, 1891, to June 30, 1892	3,657.48	
For transportation on route 176014, July 1, 1891, to June 30, 1892	6,070.76	
For transportation on route 176032, July 1, 1891, to June 30, 1892	1,277.00	
		30,852.85
Sioux City and Pacific R. R. Co. (nonaided), Iowa, for transportation on route 143029, July 1, 1891, to June 30, 1892		385.48

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Inland mail transportation, post-office cars (act Mar. 3, 1891, vol. 26, p. 1080, sec. 1)—Continued.		
Sioux City and Pacific R. R. Co. (aided), Iowa, for transportation on routes 143029 and 143077, July 1, 1891, to June 30, 1892. One-half the earnings on the aided portions of these routes suspended		$1,786.24
Total post-office cars, 1892		33,024.57
Compensation of postmasters (act June 30, 1891, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 296, sec. 1):		
Amount appropriated for the fiscal year for which the appropriation is required		14,578,118.41
L, B. Clayton, postmaster, Ayres, Ala. For compensation undercredited in first quarter, 1891		7.07
E. W. Godfrey, postmaster, Fort Payne, Ala. For compensation undercredited in third quarter, 1890		115.22
J. M. Dee, late postmaster, Pine Hill, Ala. For compensation undercredited in third quarter, 1890		9,75
M. Lewis, late postmaster, Seale, Ala. For compensation undercredited in second quarter, 1891		83.83
C. Lewis, late postmaster, Seale, Ala. For compensation undercredited in second quarter, 1891		12.37
D. E. Pratt, late postmaster, Whitfield, Ala. For compensation undercredited in first quarter, 1891		5.13
W. W. Jackson, late postmaster, Bono, Ark. For compensation undercredited in second quarter, 1891		5.98
H. B. Love, late postmsater, Linder, Ark. For compensation undercredited in first quarter, 1891		3.70
W. B Love, postmaster, Linder, Ark. For compensation undercredited in—		
In first quarter, 1891	$9.89	
In second quarter, 1891	13.06	
		22.95
A. L. Cooper, late postmaster, Mammoth Springs, Ark. For compensation undercredited in third quarter, 1890		97.40
W. L. Henry, late postmaster, Monticello, Ark. For compensation undercredited in second quarter, 1891		3.58
Jacob Mortensen, late postmaster, Morton, Ark. For compensation undercredited in second quarter, 1891		6.56
W. Y. Evans, late postmaster, Rison, Ark. For compensation undercredited in first quarter, 1891		63.38
Charles Louis, late postmaster, Blanco, Cal. For compensation undercredited in first quarter, 1891		17.58
E. A. Hersey, postmaster, Cisco, Cal. For compensasion undercredited in second quarter, 1891		29.27
A. J. Rankin, late postmaster, East Riverside, Cal. For compensation undercredited in fourth quarter, 1890		17.02
W. J. Marsh, postmaster, East Riverside, Cal. For compensation undercredited in fourth quarter, 1890		2.61
B.McNulty, postmaster, Fortuna, Cal. For compensation undercredited—		
In first quarter, 1891	$0.36	
In second quarter, 1891	.60	
		.96
J. W. Trimble, postmaster, Hampson, Cal. For compensation undercredited in first quarter, 1891		2.10
L. O. Sharp, late postmaster, Madera, Cal. For compensation undercredited in third quarter, 1890		16.86
J. J. Croxon, postmaster, New Idria, Cal. For compensation undercredited—		
In third quarter, 1890	$11.87	
In fourth quarter, 1890	11.59	
In first quarter, 1891	13.90	
In second quarter, 1891	14.70	
		52.06
A. Rowland, late postmaster, Puente, Cal. For compensation undercredited in first quarter, 1891		24.69
F. P. Mannix, late postmaster, Highlands, Colo. For compensation undercredited in second quarter, 1891		20.61
Carrie Wagner, late postmaster, Rayner, Colo. For compensation undercredited—		
In fourth quarter, 1890	$28.81	
In first quarter, 1891	24.22	
In second quarter, 1891	10.87	
		63.90
J. C. Fields, late postmaster, Sherman, Colo. For compensation undercredited in second quarter, 1891		7.51
J. M. Smith, late postmaster, Villa Park, Colo. For compensation undercredited in first quarter, 1891		41.99
R. J. Maloney, late postmaster, Buckland, Conn. For compensation undercredited—		
In third quarter, 1890	$78.08	
In fourth quarter, 1890	80.53	
In first quarter, 1891	80.38	
In second quarter, 1891	76 62	
		315.61
Asa E. I. Bush, postmaster, Niantic, Conn. For compensation undercredited in third quarter, 1890		5.43

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act June 30, 1891, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 296, sec. 1)—Continued.

Geo. H. Space, late postmaster, Stratford, Conn. For compensation undercredited in fourth quarter, 1890		$4.08
C. C. Crippen, postmaster, Eustis, Fla. For compensation undercredited in fourth quarter, 1890		22.83
W. T. Gilmore, late postmaster, Gilmore, Fla. For compensation undercredited in second quarter, 1891		.13
M. H. Waring, postmaster, Madison, Fla. For compensation undercredited—		
In fourth quarter, 1890	$5.12	
In first quarter, 1891	6.54	
		11.66
T. B. Page, late postmaster, Milligan, Fla. For compensation undercredited in first quarter, 1891		6.39
Corine Leonard, late postmaster, Milligan, Fla. For compensation undercredited in first quarter, 1891		47.09
Richard H. Scott, late postmaster, Sarasota, Fla. For compensation undercredited in fourth quarter, 1890		148.93
B. C. Scrimgour, late postmaster, Titusville, Fla. For compensation undercredited in first quarter, 1891		8.61
J. E. Templeton, late postmaster, Alcove, Ga. For compensation undercredited in second quarter, 1891		1.22
J. B. Kelly, postmaster, Coffee, Ga. For compensation undercredited in second quarter, 1891		7.26
J. P. Coffee, postmaster, Coffee, Ga. For compensation undercredited in second quarter, 1891		10.16
T. W. Glass, late postmaster, Crowder, Ga. For compensation undercredited in first quarter, 1891		.64
E. D. Winn, postmaster, Danburg, Ga. For compensation undercredited in fourth quarter, 1890		.66
Irvin Lawson, late postmaster, Hahira, Ga. For compensation undercredited in first quarter, 1891		36.97
H. T. Connor, late assistant postmaster, Hart, Ga. For compensation undercredited—		
In third quarter, 1890	$3.12	
In fourth quarter, 1890	1.28	
		4.40
W. H. Cone, postmaster, Ivanhoe, Ga. For compensation undercredited in fourth quarter, 1891		20.00
W. M. McDowney, late postmaster, Ohoopee, Ga. For compensation undercredited in fourth quarter, 1890		35.08
W. B. Petty, postmaster, Pulaski, Ga. For compensation undercredited in second quarter, 1891		8.32
J. L. Wallace, late postmaster, Ruark, Ga. For compensation undercredited in second quarter, 1891		2.76
Charles Smith, postmaster, Hoodoo, Idaho. For compensation undercredited—		
In fourth quarter, 1890	$2.96	
In third quarter, 1890	.45	
In first quarter, 1891	3.71	
In second quarter, 1891	3.47	
		10.59
Ernst Ruhl, late postmaster, Ernst, Ill. For compensation undercredited in first quarter, 1891		4.34
C. C. Tyler, late postmaster, Fountain Green, Ill. For compensation undercredited in first quarter, 1891		16.19
D. C. Robertson, late postmaster, Greenup, Ill. For compensation undercredited in first quarter, 1891		17.20
Ida M. Robertson, late acting postmaster, Greenup, Ill. For compensation undercredited in first quarter, 1891		81.85
Ida M. Robertson, postmaster, Greenup, Ill. For compensation undercredited in first quarter, 1891		72.19
J. J. Miley, late postmaster, Miley, Ill. For compensation undercredited in first quarter, 1891		5.36
T. J. Buntain, late postmaster, Momence, Ill. For compensation undercredited in first quarter, 1891		8.61
J. M. Sims, late postmaster, Nevins, Ill. For compensation undercredited—		
In fourth quarter, 1890	$19.75	
In first quarter, 1891	18.02	
		37.77
H. M. Chillis, late acting postmaster, Pocahontas, Ill. For compensation undercredited in fourth quarter, 1890		18.67
S. H. Challis, late postmaster, Pocahontas, Ill. For compensation undercredited in fourth quarter, 1890		73.02
James Greig, postmaster, Seatonville, Ill. For compensation undercredited in second quarter, 1891		59.02
J. W. Benham, late postmaster, Benham, Ind. For compensation undercredited in second quarter, 1891		8.60
J. H. Ballard, late postmaster, Hillham, Ind. For compensation undercredited in fourth quarter, 1890		10.19
Sureties J. H. Ballard, late postmaster, Hillham, Ind. For compensation undercredited in fourth quarter, 1890		18.32
L. B. Davis, postmaster, Letts Corner, Ind. For compensation undercredited in second quarter, 1891		52.61
John Cable, late postmaster, Lockport, Ind. For compensation undercredited in second quarter, 1891		3.84

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act June 30, 1891, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 296, sec. 1)—Continued.

L. S. Elmore, postmaster, Messena, Ind. For compensation undercredited in second quarter, 1891 ..... $4.69

R. G. Hunt, postmaster, Modoc, Ind. For compensation undercredited in third quarter, 1890 ..... 52.46

L. H. Redic, late postmaster, Snyder, Ind. For compensation undercredited in second quarter, 1891 ..... 10.10

J. Allee, late postmaster, Zenas, Ind. For compensation undercredited in fourth quarter, 1890 ..... 15.05

Robert J. Cutts, late postmaster, Ardmore, Ind. T. For compensation undercredited in first quarter, 1891 ..... 50.00

J. M. Taylor, postmaster, Claremore, Ind. T. For compensation undercredited in fourth quarter, 1890 ..... 79.83

J. W. Mills, postmaster, Kingfisher, Ind. T. For compensation undercredited in third quarter, 1890 ..... 57.07

F. F. Hammond, late postmaster, Paul Valley, Ind. T. For compensation undercredited in second quarter, 1891 ..... 209.18

T. H. Ash, postmaster, Rodney, Ind. T. For compensation undercredited in first quarter, 1891 ..... 35.16

A. A. French, late postmaster, Talala, Ind. T. For compensation undercredited—

In fourth quarter, 1890	$28.61
In first quarter, 1891	23.88
	52.49

F. M. Dawson, postmaster, Talala, Ind. T. For compensation undercredited—

In first quarter, 1891	$9.30
In second quarter, 1891	45.96
	55.26

H. A. Galloway, late postmaster, Veneta, Ind. T. For compensation undercredited in second quarter, 1891 ..... 8.25

G. E. Comstock, late postmaster, Fayette, Iowa. For compensation undercredited in fourth quarter, 1890 ..... 25.00

W. Molyneux, late postmaster, Hawarden, Iowa. For compensation undercredited in first quarter, 1891 ..... 12.22

William Patterson, late postmaster, Weller, Iowa. For compensation undercredited in second quarter, 1891 ..... 7.83

W. V. Yontz, late postmaster, Farnsworth, Kans. For compensation undercredited in second quarter, 1891 ..... 3.96

Clara L. Nichols, late postmaster, Fort Leavenworth, Kans. For compensation undercredited in third quarter, 1890 ..... 6.80

J. H. Polly, late postmaster, Osawatomie, Kans. For compensation undercredited in fourth quarter, 1890 ..... 1.09

P. H. Blinn, postmaster, Penalosa, Kans. For compensation undercredited in fourth quarter, 1890 ..... 19.15

J. U. Shannon, postmaster, Vernon, Kans. For compensation undercredited in fourth quarter, 1890 ..... 31.52

S. H. Baldwin, late postmaster, Webster, Kans. For compensation undercredited in third quarter, 1890 ..... 26.64

Wilson Liff, late postmaster, Weir, Kans. For compensation undercredited in fourth quarter, 1890 ..... 14.13

W. R. Morgan, late postmaster, Abbott, Ky. For compensation undercredited in second quarter, 1891 ..... 6.77

F. M. Rea, late postmaster, Clarks Station, Ky. For compensation undercredited in second quarter, 1891 ..... 3.63

M. A. Eads, postmaster, Eadsville, Ky. For compensation undercredited in first quarter, 1891 ..... 5.31

J. W. Wright, late postmaster, Long Fork, Ky. For compensation undercredited in second quarter, 1891 ..... 1.50

G. T. Johnson, postmaster, Long Fork, Ky. For compensation undercredited in second quarter, 1891 ..... 5.28

H. G. Colson, late postmaster, Middleboro, Ky. For compensation undercredited in first quarter, 1891 ..... 175.00

W. M. Bingham, late postmaster, Pineville, Ky. For compensation undercredited in fourth quarter, 1890 ..... 7.61

A. Nunez, late postmaster, Arabi, La. For compensation undercredited in first quarter, 1891 ..... 8.61

Emma Koerber, late acting postmaster, Camp Parapet, La. For compensation undercredited—

In third quarter, 1890	$14.66
In fourth quarter, 1890	20.45
In first quarter, 1891	15.66
In second quarter, 1891	13.81
	64.58

J. S. Dixon, postmaster, Egypt, La. For compensation undercredited—

In first quarter, 1891	$4.56
In second quarter, 1891	5.73
	10.29

J. M. Jones, late postmaster, Marston, La. For compensation undercredited in third quarter, 1890 ..... 13.22

A. Bland, late postmaster, Point Pleasant, La. For compensation undercredited in first quarter, 1891 ..... 4.59

J. S. Campbell, late postmaster, Point Pleasant, La. For compensation undercredited—

In first quarter, 1891	$48.61
In second quarter, 1891	41.51
	90.12

Estimates of appropriations required for the service of the fiscal years endiny June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act June 30,1891, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 296, sec. 1)—Continued.

B.F. Smith, postmaster, Sikes Ferry, La. For compensation undercredited in second quarter, 1891		$1.35
J. D. Mahaffey, late postmaster, Waddill, La. For compensation undercredited in second quarter, 1891		6.11
J. D. Mahaffey, late postmaster, Waddill, La. For compensation undercredited in second quarter. 1891		13.49
M. J. Germany, late postmaster, Walker, La. For compensation undercredited in first quarter, 1891		.10
W. B. Woodward, late postmaster, Brunswick, Me. For compensation undercredited in second quarter, 1891		450.00
H. O. Averill, late postmaster, East Winn, Me. For compensation undercredited—		
In fourth quarter, 1890	$39.72	
In first quarter, 1891	19.34	
		59.06
J. R. Wiley, late postmaster, St. George, Me. For compensation undercredited in first quarter, 1891		12.50
J. T. Robinson, late postmaster, St. George, Me. For compensation undercredited ln first quarter, 1891		.72
H. V. Messinger, late postmaster, Exeter Mills, Me. For compensation undercredited in first quarter, 1891		18.10
Belonie Hebert, postmaster, Upper Madawaska, Me. For compensation undercredited in second quarter, 1891		7.93
Ivory Littlefield, postmaster, West Kennebunk, Me. For compensation undercredited—		
In fourth quarter, 1890	$73.72	
In first quarter, 1891	86.43	
In second quarter, 1891	80.06	
		240.21
Clifton Coates, late postmaster, Aireys, Md. For compensation undercredited in second quarter, 1891		20.57
L. H. Mowbray, postmaster, Aireys, Md. For compensation undercredited in second quarter, 1891		.08
R. Stanforth, late postmaster, Aquasco, Md. For compensation undercredited in first quarter, 1891		33.84
G. D. Mercer, postmaster, Aquasco, Md. For compensation undercredited in first quarter, 1891		2.46
Wm. Harvey, late postmaster, Childs, Md. For compensation undercredited in second quarter, 1891		6.34
Jas. C. Tawes, late postmaster, Crisfield, Md. For compensation undercredited in first quarter, 1891		10.28
S. C. Thompson, late postmaster, Hollywood, Md. For compensation undercredited in first quarter, 1891		7.68
C. A. Flack, postmaster, Linden, Md. For compensation undercredited in second quarter, 1891		18.19
I. S. Brilhart, late postmaster, Wakefield, Md. For compensation undercredited in second quarter, 1891		.57
J. F. Babylon. postmaster, Wakefield, Md. For compensation undercredited in second quarter, 1891		6.66
M. M. L. Jacobs, late postmaster, Ellis, Mass. For compensation undercredited in second quarter, 1891		1.83
O. F. Hale, postmaster, Gill, Mass. For compensation undercredited in first quarter, 1891		53.88
W. B. Chase, late postmaster, Swampscott, Mass. For compensation undercredited in third quarter, 1890		25.00
S. M. Dewey, late postmaster, Clam Lake, Mich. For compensation undercredited in third quarter, 1890		5.45
F. B. Tyler, postmaster, Crow Island, Mich. For compensation undercredited—		
In fourth quarter, 1890	$22.72	
In first quarter, 1891	21.06	
In second quarter, 1891	23.50	
		67.28
T. E. Timlin, late postmaster, Floodwood, Mich. For compensation undercredited—		
In fourth quarter, 1890	$128.75	
In first quarter, 1891	55.35	
		184.10
W. J. Smith, postmaster, Floodwood, Mich. For compensation undercredited in first quarter, 1891		69.82
E. Brearley, postmaster, Frontier, Mich. For compensation undercredited in second quarter, 1891		55.07
Joseph Stafford, late postmaster, Newburg, Mich. For compensation undercredited in second quarter, 1891		8.52
J. M. Hankins, late postmaster, Royalton, Mich. For compensation undercredited in fourth quarter, 1890		18.81
Lillie Harter, late postmaster, Benson, Minn. For compensation undercredited in first quarter, 1891		6.39
J. J. Olson, late postmaster, Colfax, Minn. For compensation undercredited in first quarter, 1891		10.40
P. E Danielson, late acting postmaster, Colfax, Minn. For compensation undercredited in first quarter, 1891		3.25
C. G. Strand, postmaster, Ruthton, Minn. For compensation undercredited in third quarter, 1890		17.92

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act June 30, 1891, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 296, sec. 1)—Continued.

H. M. Ierkland, late postmaster, St. James, Minn. For compensation undercredited in first quarter, 1891		$8.61
Andrew Eaton, late postmaster, Wells, Minn. For compensation undercredited in first quarter, 1891		25.00
Geo. J. Mallory, late postmaster, West Duluth, Minn. For compensation undercredited in first quarter, 1891		25.83
J. B. Pease, postmaster, Concordia, Miss. For compensation undercredited in first quarter, 1891		18.45
C. K. Davis, postmaster, Hillside, Miss. For compensation undercredited in third quarter, 1890		12.76
M. E. Frity, late postmaster, Lexington, Miss. For compensation undercredited in first quarter, 1891		155.56
J. L. Wells, late postmaster, Moores Mills, Miss. For compensation undercredited in first quarter, 1891		2.66
J. J. Mitchell, late postmaster, Richardson, Miss. For compensation undercredited in first quarter, 1891		10.26
A. M. Hardin, late postmaster, Searcy, Miss. For compensation undercredited in second quarter, 1891		1.77
A. T. Greer, late acting postmaster, Searcy, Miss. For compensation undercredited in second quarter, 1891		.57
F. M, Holmes, late postmaster, Forest Home, Mo. For compensation undercredited in first quarter, 1891		15.92
C. A. McCoy, postmaster, Kenmoor, Mo. For compensation undercredited in second quarter, 1891		9.97
James Wise, late postmaster, McCredie, Mo. For compensation undercredited in second quarter, 1891		5.31
J. W. Wiggins, late postmaster, Mill Grove, Mo. For compensation undercredited in fourth quarter, 1890		2.27
R. B. West, late postmaster, Morehouse, Mo. For compensation undercredited in fourth quarter, 1890		13.23
Orlando Howe, postmaster, Servia, Mo. For compensation undercredited in second quarter, 1891		2.38
L. W. Garrison, postmaster, Sue City, Mo. For compensation undercredited in third quarter, 1890		30.79
J. F. Mounts, late postmaster, Versailles, Mo. For compensation undercredited—		
In first quarter, 1891	$25.00	
In second quarter, 1891	25.00	
		50.00
Matthew Quinn, postmaster, Wataga, Mo. For compensation undercredited in first quarter, 1891		32.50
Sallie H. Haley, late postmaster, Webster Grove, Mo. For compensation undercredited in second quarter, 1891		3.29
J. W. Leland, late postmaster, Cottonwood, Mont. For compensation undercredited in first quarter, 1891		9.36
P. A. McGinley, late postmaster, Arabia, Nebr. For compensation undercredited in second quarter, 1891		17.66
F. A. Stratton, postmaster, Berea, Nebr. For compensation undercredited in second quarter, 1891		8.81
J. P. Berger, late postmaster, Berea, Nebr. For compensation undercredited in second quarter, 1891		10.36
T. W. Mattoon, late postmaster, Blue Springs, Nebr. For compensation undercredited in first quarter, 1891		16.39
M. Theerven, late postmaster, Celia, Nebr. For compensation undercredited in second quarter, 1891		8.53
M. M. Coleman, postmaster, Chelsea, Nebr. For compensation undercredited in second quarter, 1891		3.60
Albin Burk, late postmaster, Cyrus, Nebr. For compensation undercredited in second quarter, 1891		1.81
J. F. O. Townson, postmaster, Cyrus, Nebr. For compensation undercredited in second quarter, 1891		1.79
W. C. May, late postmaster, Gothenburg, Nebr. For compensation undercredited in fourth quarter, 1890		5.98
G. W. Patterson, late postmaster, Moran, Nebr. For compensation undercredited—		
In third quarter, 1890	$15.00	
In fourth quarter, 1890	1.30	
		16.30
Edwin Hershiser, late postmaster, O'Neill, Nebr. For compensation undercredited—		
In third quarter, 1890	$350.00	
In fourth quarter, 1890	350.00	
In first quarter, 1891	350.00	
		1,050.00
E. M. Burke, late postmaster, Stark, Nebr. For compensation undercredited in third quarter, 1890		3.41
C. Rydson, postmaster, Stark, Nebr. For compensation undercredited in third quarter, 1890		5.59
Elizabeth F. Tunis, postmaster, Stowe, Nebr. For compensation undercredited—		
In first quarter, 1891	$2.99	
In second quarter, 1891	7.11	
		10.10

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act June 30, 1891, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 296, sec. 1)—Continued.		
John Tallin, late postmaster, Tallin, Nebr. For compensation undercredited—		
In third quarter, 1890	$7.13	
In fourth quarter, 1890	7.86	
In first quarter, 1891	12.49	
In second quarter, 1891	7.74	
		$35.22
G. P. Little, late postmaster, North Branch, N. H. For compensation undercredited in first quarter, 1891		2.91
Nelson St. Sanveur, postmaster, North Branch, N. H. For compensation under credited—		
In first quarter, 1891	$28.98	
In second quarter, 1891	32.85	61.83
A. E. Sartwell, late postmaster, Whitefield, N. H. For compensation undercredited—		
In fourth quarter, 1890	$25.00	
In first quarter, 1891	15.55	40.55
B. B. Pearce, late postmaster, Manasquan, N. J. For compensation undercredited in fourth quarter, 1890		5.70
S. E. Rogers, late postmaster, Prospertown, N. J. For compensation undercredited in second quarter, 1891		5.86
W. H. Foster, postmaster, Scobeyville, N. J. For compensation undercredited—		
In third quarter, 1890	$9.25	
In fourth quarter, 1890	13.06	
In first quarter, 1891	12.18	
In second quarter, 1891	14.21	
		48.70
G. M. Day, postmaster, Endee, N. Mex. For compensation undercredited—		
In first quarter, 1891	$28.38	
In second quarter, 1891	28.65	57.03
Grace Elgin, late postmaster, Benson Center, N. Y. For compensation undercredited in fourth quarter, 1890		3.76
A. M. Brown, late acting postmaster, Benson Centre, N. Y. For compensation undercredited—		
In fourth quarter, 1890	$1.01	
In first quarter, 1891	8.15	
		9.16
A. M. Brown, postmaster, Benson Center, N. Y. For compensation undercredited in second quarter, 1891		5.97
A. M. Dayton, late postmaster, Brandon, N. Y. For compensation undercredited—		
In third quarter, 1890	$107.46	
In fourth quarter, 1890	106.07	
In first quarter, 1891	51.48	
		265.01
P. V. Hepburn, late postmaster, Colton, N. Y. For compensation undercredited in first quarter, 1891		118.90
Wm. Wiles, late postmaster, Fultonville, N. Y. For compensation undercredited in first quarter, 1891		10.28
W. A. Stevenson, late postmaster, Lawrence, N. Y. For compensation undercredited in second quarter, 1891		2.56
J. T. Sine, postmaster, Lawrence, N. Y. For compensation undercredited in second quarter, 1891		4.11
John Baer, jr., late postmaster, Mileses, N. Y. For compensation undercredited—		
In first quarter, 1891	$11.45	
In second quarter, 1891	10.48	
		21.93
W. G. Feelin, postmaster, Plains, N. Y. For compensation undercredited in first quarter, 1891		10.00
C. J. S. Randal, late postmaster, Rouses Point, N. Y. For compensation undercredited in fourth quarter, 1890		3.53
W. F. Roberts, late postmaster, Saranac Lake, N. Y. For compensation undercredited in third quarter, 1890		31.79
Woodhull N. Raynor, late postmaster, Sayville, N. Y. For compensation undercredited in fourth quarter, 1890		7.34
H. F. Herrick, late postmaster, Southampton, N. Y. For compensation undercredited in third quarter, 1890		27.18
J. K. Grant, late postmaster, Stamford, N. Y. For compensation undercredited in fourth quarter, 1890		12.77
Frank Wood, postmaster, Stedman, N. Y. For compensation undercredited—		
In first quarter, 1891	$34.72	
In second quarter, 1891	29.40	
		64.12
T. B. Lynch, late postmaster, Essex, N. C. For compensation undercredited in second quarter, 1891		11.45
W. L. Wilson, late postmaster, Gregorys, N. C. For compensation undercredited—		
In fourth quarter, 1890	$11.10	
In first quarter, 1891	15.08	
In second quarter, 1891	8.81	
		34.99

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act June 30, 1891, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 296, sec. 1)—Continued.

T. E. McCrary, late postmasier, Lexington, N. C. For compensation undercredited in fourth quarter, 1890		$4.35
L. A. Bristol, late postmaster, Morganton, N. C. For compensation undercredited in fourth quarter, 1890		4.08
W. Lee Person, late postmaster, Rocky Mount, N. C. For compensation undercredited in third quarter, 1890		8.42
J. W. Taylor, postmaster, St. Philip, N. C. For compensation undercredited in second quarter, 1891		15.78
J. D. Gilliam, late postmaster, White Hall, N. C. For compensation undercredited—		
In third quarter, 1890	$9.43	
In fourth quarter, 1890	16.33	
In first quarter, 1891	1.10	
		26.86
K. M. Grant, postmaster, Yellow Creek, N. C. For compensation undercredited—		
In first quarter, 1891	$3.36	
In second quarter, 1891	3.15	
		6.51
A. H. Cooper, postmaster, Zion, N. C. For compensation undercredited—		
In first quarter, 1891	$4.35	
In second quarter, 1891	7.40	
		11.75
J. W. Vaughn, late postmaster, Banner, Ohio. For compensation undercredited in first quarter, 1891		11.03
R. L. Church, late postmaster, Black Creek, Ohio. For compensation undercredited in third quarter, 1890		52.96
A. C. Pearce, postmaster, Clifford, Ohio. For compensation undercredited—		
In first quarter, 1891	$11.40	
In second quarter, 1891	8.33	
		19.73
Mary S. J. McGroarty, late postmaster, College Hill, Ohio. For compensation undercredited in fourth quarter, 1890		4.35
D. Wever, late postmaster, Lock Seventeen, Ohio. For compensation undercredited in first quarter, 1891		15.88
D. V. Heck, late acting postmaster, Lock Seventeen, Ohio. For compensation undercredited—		
In first quarter, 1891	$16.19	
In second quarter, 1891	3.07	
		19.26
D. V. Heck, postmaster, Lock Seventeen, Ohio. For compensation undercredited in second quarter, 1891		22.69
J. P. Uncaper, postmaster, Longville, Ohio. For compensation undercredited in second quarter, 1891		3.83
Isaac Whitehouse, late postmaster, Meigs Creek, Ohio. For compensation undercredited in second quarter, 1891		6.38
Levi Canter, postmaster, Salt Air, Ohio. For compensation undercredited in second quarter, 1891		11.31
Fred Knagi, late postmaster, Toronto, Ohio. For compensation undercredited in fourth quarter, 1890		7.61
E. E. Hazen, late postmaster, Woodland, Ohio. For compensation undercredited in second quarter, 1891		3.56
D. T. Flynn, late postmaster, Guthrie, Okla. For compensation undercredited in third quarter, 1890		71.74
W. D. Crane, late postmaster, Optima, Okla. For compensation undercredited in second quarter, 1891		5.54
M. E. Crane, late postmaster, Optima, Okla. For compensation undercredited in second quarter, 1891		10.47
M. A. McKenzie, late postmaster, Albina, Oregon. For compensation undercredited in fourth quarter, 1890		6.25
N. P. Dodge, late postmaster, Grants Pass, Oregon. For compensation undercredited in fourth quarter, 1890		.55
J. H. Hann, postmaster, Lostine, Oregon. For compensation undercredited in second quarter, 1891		43.28
L. L. Adams, late postmaster, Niagara, Oregon. For compensation undercredited in second quarter, 1891		18.36
George Landrith, late postmaster, Siuslaw, Oregon. For compensation undercredited—		
In third quarter, 1890	$4.21	
In fourth quarter, 1890	6.19	
In first quarter, 1891	7.91	
In second quarter, 1891	4.54	
		22.85
G. F. Johnson, late postmaster, Willsburg, Oregon. For compensation undercredited—		
In third quarter, 1890	$21.61	
In fourth quarter, 1890	32.37	
		53.98
N. H. Hastings, late postmaster, Austin, Pa. For compensation undercredited in fourth quarter, 1890		7.34
O. H. Hinnershitz, postmaster, Cumru, Pa. For compensation undercredited in second quarter, 1891		3.86
M. M. Kistler, late postmaster, East Stroudsburg, Pa. For compensation undercredited in fourth quarter, 1890		3.53

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act June 30, 1891, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 296, sec. 1)—Continued.		
Thomas Munroe, late postmaster, Gallitzin, Pa. For compensation undercredited in first quarter, 1891		$8.61
T. A. Boak, late postmaster, Hughesville, Pa. For compensation undercredited in second quarter, 1891		250.00
James B. Haines, late postmaster, Jeannette, Pa. For compensation undercredited—		
In fourth quarter, 1890	$100.00	
In first quarter, 1891	100.00	
		200.00
A. H. Griscom, late postmaster, Jenkintown, Pa. For compensation undercredited in fourth quarter, 1890		6.76
S. R. Gittig, postmaster, Madisonburg, Pa. For compensation undercredited in second quarter, 1891		37.93
J. E. Berlin, late postmaster, Mayburg, Pa. For compensation undercredited in second quarter, 1891		19.58
Edwin Porter, postmaster, Nashua, Pa. For compensation undercredited in second quarter, 1891		9.91
R. A. Stephens, postmaster, Niven. For compensation undercredited—		
In third quarter, 1890	$8.29	
In fourth quarter, 1890	8.49	
In first quarter, 1891	8.13	
In second quarter, 1891	9.96	
		34.87
Hezekiah Pettigrew, late postmaster, Perrine, Pa. For compensation undercredited in second quarter, 1891		8.65
A. T. Shipton, late postmaster, Rand, Pa. For compensation undercredited in second quarter, 1891		.29
Seth Orme, late postmaster, St. Clair, Pa. For compensation undercredited in fourth quarter, 1890		250.00
Geo. F. Dengler, late postmaster, Schuylkill, Pa. For compensation undercredited—		
In third quarter, 1890	$50.00	
In fourth quarter, 1890	11.41	
		61.41
G. Horton, late postmaster, Sheffield, Pa. For compensation undercredited in fourth quarter, 1890		25.00
C. O. Kingsbury, postmaster, Slippery Rock, Pa. For compensation undercredited—		
In first quarter, 1891	$167.94	
In second quarter, 1891	183.19	
		351.13
T. F. Ramsey, late postmaster, Wayne, Pa. For compensation undercredited in third quarter, 1890		117.39
S. P. Ramsey, late assistant postmaster, Wayne, Pa. For compensation undercredited in third quarter, 1890		182.61
T. W. Tolbert, late postmaster, Abbeville, S. C. For compensation undercredited in first quarter, 1891		9.72
J. J. Cartledge, late postmaster, Brandywine, S. C. For compensation undercredited in third quarter, 1890		14.70
R. R. Tolbert, late postmaster, Greenwood, S. C. For compensation undercredited in fourth quarter, 1890		25.00
J. B. Mayes, postmaster, Kennerly, S. C. For compensation undercredited in third quarter, 1890		1.26
L. D. Robertson, late postmaster, Rockton, S. C. For compensation undercredited in second quarter, 1891		37.49
T. J. Collins, postmaster, Lake City, S. Dak. For compensation undercredited in—		
First quarter, 1891	$4.79	
Second quarter, 1891	5.10	
		9.89
G. S. Maxson, late postmaster, Lodi, S. Dak. For compensation undercredited in first quarter, 1891		18.06
J. W. Perkins, late postmaster, Melvin, S. Dak. For compensation undercredited in third quarter, 1890		4.99
W. H. Triplett, postmaster, Sedgwick, S. Dak. For compensation undercredited in second quarter, 1891		9.47
W. S. Chase, late postmaster, Sturgis, S. Dak. For compensation undercredited in fourth quarter, 1890		8.42
John Potter, late postmaster, Troy, S. Dak. For compensation undercredited in first quarter, 1891		11.20
R. C. Couch, late postmaster, Bellbuckle, Tenn. For compensation undercredited in second quarter, 1891		17.92
B. A. Russell, late postmaster, Campbell, Tenn. For compensation undercredited in third quarter, 1890		5.45
T. M. Clepper, postmaster, Dove, Tenn. For compensation undercredited in second quarter, 1891		3.41
Z. D. Massey, late postmaster, Henderson Springs, Tenn. For compensation undercredited in third quarter, 1890		5.62
G. W. Ehle, postmaster, Maplewood, Tenn. For compensation undercredited in first quarter, 1891		17.98
C. T. Booker, postmaster, Mason, Tenn. For compensation undercredited in second quarter, 1891		107.92
J. H. Springfield, late postmaster, Retro, Tenn. For compensation undercredited in second quarter, 1891		2.23

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act June 30, 1891, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 296, sec. 1)—Continued.

J. T. Justus, postmaster, Springhouse, Tenn. For compensation undercredited—		
In third quarter, 1890	$24.59	
In fourth quarter, 1890	30.55	
In first quarter, 1891	35.87	
		$91.01
Geo. W. Smith, late postmaster, Ballinger, Tex. For compensation undercredited in fourth quarter, 1890		20.11
L. S. Bell, late postmaster, Bells Ferry, Tex. For compensation undercredited in second quarter, 1891		.38
H. C. Keller, late postmaster, Bell's Ferry, Tex. For compensation undercredited in second quarter, 1891		8.05
W. D. Morgan, postmaster, Bell's Ferry, Tex. For compensation undercredited in second quarter, 1891		17.31
G. S. Williams, late postmaster, Cisco, Tex. For compensation undercredited in fourth quarter, 1890		8.42
Ralph Jefferson, late postmaster, Clarendon, Tex. For compensation undercredited in second quarter, 1891		25.00
F. H. Hill, late postmaster, Crockett, Tex. For compensation undercredited in first quarter, 1891		6.11
G. M. Arnold, late postmaster, Dublin, Tex. For compensation undercredited in first quarter, 1891		45.00
W. B. Finley, late postmaster, Jewell, Tex. For compensation undercredited in first quarter, 1891		4.33
I. N. Stovall, postmaster, Jewell, Tex. For compensation undercredited in first quarter, 1891		9.26
W. D. Peevey, late postmaster, Nacogdoches, Tex. For compensation undercredited in third quarter, 1890		5.70
M. A. McCollum, late postmaster, Norton, Tex. For compensation undercredited in fourth quarter, 1890		14.41
W. W. Decker, late postmaster, Norton, Tex. For compensation undercredited—		
In fourth quarter, 1890	$3.34	
In first quarter, 1891	18.71	
In second quarter, 1891	16.04	
		38.09
W. G. Sterling, late postmaster, Pennington, Tex. For compensation undercredited in first quarter, 1891		17.06
W. M. Griffith, late postmaster, Quanah, Tex. For compensation undercredited in second quarter, 1891		18.68
S. P. Hyman, late postmaster, Stephensville, Tex. For compensation undercredited in second quarter, 1891		4.95
T. W. Phillips, postmaster, Stubbs, Tex. For compensation uncredited in second quarter, 1891		10.99
Adam Brendel, late postmaster, Valentine, Tex. For compensation undercredited in first quarter, 1891		14.42
J. J. Edgar, postmaster, Valentine, Tex. For compensation undercredited in first quarter, 1891		28.95
M. L. Monkhouse, late postmaster, Walnut Grove, Tex. For compensation undercredited—		
In fourth quarter, 1890	$11.01	
In first quarter, 1891	12.04	
		23.05
E. Mullen, late postmaster, Yoakum, Tex. For compensation undercredited in second quarter, 1891		225.22
Peter Clay, late postmaster, Bingham Canyon, Utah. For compensation undercredited in fourth quarter, 1890		109.83
Charles Edyngton, late postmaster, Tyner, Utah. For compensation undercredited in third quarter, 1890		14.19
R. W. Hulburd, late postmaster, Hyde Park, Vt. For compensation undercredited in fourth quarter, 1890		13.04
H. J. Fleury, late postmaster, Isle La Motte, Vt. For compensation undercredited in second quarter, 1891		50.36
M. L. Hall, postmaster, Beaver Dam Mills, Va. For compensation undercredited in first quarter, 1891		5.05
J. M. Goodloe, late postmaster, Big Stone Gap, Va. For compensation undercredited in second quarter, 1891		12.09
A. G. Foster, late postmaster, Clifton Forge, Va. For compensation undercredited in first quarter, 1891		19.17
S. A. Eubanks, late acting; S. G. Eubanks, late postmaster, Eubanks, Va. For compensation undercredited in second quarter, 1891		22.03
B. F. Thompson, late postmaster, Tritts, Va. For compensation undercredited in second quarter, 1891		5.24
B. H. Smith, late postmaster, Radford, Va. For compensation undercredited in second quarter, 1891		83.79
M. A. Galloway, late postmaster, Singer, Va. For compensation undercredited in first quarter, 1891		64.81
T. S. Brown, late postmaster, Waynesboro, Va. For compensation undercredited in first quarter, 1891		25.83
A. F. Stevens, late postmaster, Aberdeen, Wash. For compensation undercredited in fourth quarter, 1890		8.42
S. H. Keeler, late postmaster, Fairhaven, Wash. For compensation undercredited in first quarter, 1891		71.94

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act June 30, 1891, vol. 26, p. 207, sec. 1; act July 28, 1892, vol. 27, p. 296, sec. 1)—Continued.		
D. O. Pearson, postmaster, Stanwood, Wash. For compensation undercredited—		
In first quarter, 1891	$164.11	
In second quarter, 1891	150.78	
		$314.89
J. S. Woofter, late postmaster, Big Bend, W. Va. For compensation undercredited in second quarter, 1891		10.89
W. S. Ferrell, postmaster, Big Bend, W. Va. For compensation undercredited in second quarter, 1891		17.60
A. J. Hearn, late postmaster, Bluefield, W. Va. For compensation undercredited in second quarter, 1891		9.34
D. W. Weaver, late postmaster, Ronceverte, W. Va. For compensation undercredited in fourth quarter, 1890		250.00
D. W. Weaver, postmaster, Ronceverte, W. Va. For compensation undercredited—		
In fourth quarter, 1890	$25.00	
In first quarter, 1891	20.00	
		45.00
C. G. Bell, late postmaster, Bayfield, Wis. For compensation undercredited in first quarter, 1891		6.39
A. W. Hensel, late postmaster, Cortland, Wis. For compensation undercredited in second quarter, 1891		1.21
D. D. Tucker, postmaster, Cortland, Wis. For compensation undercredited in second quarter, 1891		2.52
Thomas Hutchinson, late postmaster, Malcolm, Wis. For compensation undercredited in second quarter, 1891		3.57
R. C. Treat, postmaster, Meadow Valley, Wis. For compensation undercredited in second quarter, 1891		34.66
J. G. Ewers, late postmaster, Mill Creek, Wis. For compensation undercredited in third quarter, 1890		11.57
M. Sweet, late postmaster, Plymouth, Wis. For compensation undercredited in fourth quarter, 1890		4.89
F. A. Larson, late postmaster, Tomahawk, Wis. For compensation undercredited—		
In fourth quarter, 1890	$50.00	
In first quarter, 1891	32.78	
		82.78
Alfred Cook, postmaster, Unity, Wis. For compensation undercredited in in first quarter, 1891		94.91
J. W. Hermon, postmaster, Wallace, Wis. For compensation undercredited in second quarter, 1891		4.40
B. McDermott, postmaster, Bellwood, Wyo For compensation undercredited in fourth quarter, 1890		51.33
C. R. Davis, late postmaster, Hill Side, Miss. For compensation undercredited—		
In first quarter, 1891	$11.24	
In second quarter, 1891	8.92	
		20.16
James A. Smith, late postmaster, Marceline, Mo. For compensation undercredited in first quarter, 1891		9.72
F. K. Bonney, late postmaster, Medfield, Mass. For compensation undercredited in third quarter, 1890		33.70
Total compensation of postmasters, 1891		11,579.33
Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1):		
Amount appropriated for the fiscal year for which the appropriation is required		14,900,000.00
For amount to reimburse the postal revenue of the fiscal year 1892, being the amount retained by postmasters in excess of the appropriation		349,565.02
W. H. Watts, postmaster, Bowne, Mich. For compensation undercredited in second quarter, 1892		27.73
J. M. French, postmaster, Burlington. For compensation undercredited in second quarter, 1892		94.75
M. N. Streeter, postmaster, Evans, Mich. For compensation undercredited—		
In first quarter, 1892	$22.91	
In second quarter, 1892	21.25	
		44.16
M. Wilson, late acting postmaster, Hagensville, Mich. For compensation undercredited in first quarter, 1892		3.95
Mathew Wilson, postmaster, Hagensville, Mich. For compensation undercredited—		
In first quarter, 1892	$16.10	
In second quarter, 1892	18.88	
		34.98
Lucy Ransom, late postmaster, Lake Ann, Mich. For compensation undercredited in second quarter, 1892		2.88
S. S. Burnett, postmaster, Lake Ann, Mich. For compensation undercredited in second quarter, 1892		78.44
H. S. Coleman, postmaster, Fletcher, Ark. For compensation undercredited in second quarter, 1892		4.90
W. H. McDill, postmaster, Garretsons Landing, Ark. For compensation undercredited in second quarter, 1892		16.76

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.		
J. W. Austin, postmaster, Preston. Ark. For compensation undercredited in second quarter, 1892		$40.92
Emma F. Stevens, postmaster, Blackfoot, Idaho. For compensation undercredited—		
In first quarter, 1892	$222.53	
In second quarter, 1892	265.89	
		488.42
Sureties F. A. Stevens, late postmaster, Blackfoot, Idaho. For compensation undercredited in first quarter, 1892		27.47
F. H. Stevens, late postmaster. Blackfoot, Idaho. For compensation undercredited in fourth quarter, 1892		2.62
Sureties F. H. Stevens, late postmaster, Blackfoot, Idaho. For compensation uncredited in first quarter, 1892		.83
Pierre Cagnolatti, late postmaster, Welcome, Idaho. For compensation undercredited in second quarter, 1892		7.76
M. L. Gainer, postmaster, Welcome, Idaho. For compensation undercredited in second quarter, 1892		19.05
R. J. Nichol, postmaster, Omard, Mich. For compensation undercredited in second quarter, 1892		8.04
F. O. Sibley, postmaster, Winger, Minn. For compensation undercredited—		
In first quarter, 1892	$20.93	
In second quarter, 1892	29.02	
		49.95
Nellie Palmer, postmaster, Zumbra Heights, Minn. For compensation undercredited in second quarter, 1892		2.40
Robert Beynon, postmaster, LeFlore, Miss. For compensation undercredited in second quarter, 1892		16.10
William Carroll, postmaster, Ship, Miss. For compensation undercredited in second quarter, 1892		5.94
B. Fensi, postmaster, St Pauls, Mont. For compensation undercredited in first quarter, 1892		18.05
C. E. Mayer, late postmaster, Fort Halleck, Nev. For compensation undercredited in second quarter, 1892		5.00
S. T. Thompson, postmaster, Arab, Ala. For compensation undercredited in second quarter, 1892		102.00
L. C. Jones, late postmaster, Bullock, Ala. For compensation undercredited in part of second quarter, 1892		13.42
I. L. Jones, postmaster, Bullock, Ala. For compensation undercredited in part of second quarter, 1892		102.00
Bird Griffin, postmaster, Oakmulgee, Ala. For compensation undercredited in second quarter, 1892		13.70
J. F. Walker, postmaster, Oatston, Ala. For compensation undercredited in second quarter, 1892		4.12
J. J. Mathis, postmaster, Percy, Ala. For compensation undercredited in second quarter, 1892		2.81
N. J. Vines, postmaster, Short Creek, Ala. For compensation undercredited in part of second quarter, 1892		.06
O. R. Gillespie, sureties of late postmaster, Steadham, Ala. For compensation undercredited in second quarter, 1892		6.81
L. W. Hubbard, postmaster, Sullivan, Ala. For compensation undercredited in second quarter, 1892		62.32
T. R. Shirley, postmaster, Allbrook, Ark. For compensation undercredited in second quarter, 1892		4.79
R. C. Stedman, late postmaster, Altheimer, Ark. For compensation undercredited in part of first quarter, 1892		4.88
R. J. Morrow, postmaster, Ashford, Ark. For compensation undercredited in second quarter, 1892		3.27
F. M. Myers, postmaster, Askew, Ark. For compensation undercredited in second quarter, 1892		13.77
B. R. Jenkins, postmaster, Barrettsville, Ark. For compensation undercredited in second quarter, 1892		14.53
G. B. Milford, postmaster, Ben Lomond, Ark. For compensation undercredited in part of second quarter, 1892		14.32
R. G. Chandler, late postmaster, Blackburn, Ark. For compensation undercredited in part of second quarter, 1892		.52
W. J. Nottingham, postmaster, Blackburn, Ark. For compensation undercredited in part of second quarter, 1892		1.11
Caroline Wilson, postmaster, Boone, Ark. For compensation undercredited in second quarter, 1892		13.35
W. R. Cowan, postmaster, Boston, Ark. For compensation undercredited in part of second quarter, 1892		6.92
J. R. Leach, postmaster, Brookland, Ark. For compensation undercredited in second quarter, 1892		30.99
T. R. Butts, postmaster, Coal Hill, Ark. For compensation undercredited in second quarter, 1892		5.00
W. C. Sullivant, postmaster, College Hill, Ark. For compensation undercredited in part of second quarter, 1892		9.27
S. M. McGehee, postmaster, Double Wells, Ark. For compensation undercredited in second quarter, 1892		5.23
N. Rose, postmaster, Eads, Ark. For compensation undercredited in second quarter, 1892		2.76
J. H. Hawley, postmaster, Grady, Ark. For compensation undercredited in second quarter, 1892		35.19
G. A. Spradling, postmaster, Greenwood, Ark. For compensation undercredited in second quarter, 1892		147.94

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

J. R. Lee, postmaster, Guernsey, Ark. For compensation undercredited in part of second quarter, 1892		$17.51
E. E. Adams, postmaster, Hepsey, Ark. For compensation undercredited in second quarter, 1892		.85
J. C. Sanders, postmaster, Ivanhoe, Ark. For compensation undercredited in second quarter, 1892		2.50
J. A. Hudson, postmaster, Locust Cottage, Ark. For compensation undercredited in second quarter, 1892		5.46
D. L. Ferguson, postmaster, Nodena, Ark. For compensation undercredited in second quarter, 1892		22.54
W. C. Pearce, postmaster, Oil Trough, Ark. For compensation undercredited in—		
First quarter, 1892	$46.49	
Second quarter, 1892	47.43	
		93.92
H. C. Redwine, late postmaster, Palatka, Ark. For compensation undercredited in part of second quarter, 1892		13.46
J. F. Russell, postmaster, Palatka, Ark. For compensation undercredited in second quarter, 1892		8.54
M. W. Quilling, postmaster, Pendleton, Ark. For compensation undercredited in second quarter, 1892		19.22
W. B. Poe, late postmaster, Poe, Ark. For compensation undercredited in part of first quarter, 1892		2.67
Wm. Shearer, postmaster, Poe, Ark. For compensation undercredited—		
In first quarter, 1892	$2.20	
In second quarter, 1892	5.41	
		7.61
W. J. Lookadoo, postmaster, Point Cedar, Ark. For compensation undercredited in second quarter, 1892		11.29
J. M. Brewer, postmaster, Snow Ball, Ark. For compensation undercredited in second quarter, 1892		16.32
H. T. Harding, postmaster, Stonewall, Ark. For compensation undercredited in second quarter, 1892		9.15
J. H. Grayson, postmaster, Wyloe, Ark. For compensation undercredited in second quarter, 1892		5.54
W. L. Lancaster, postmaster, Wynne, Ark. For compensation undercredited in second quarter, 1892		215.70
C. S. James, postmaster, Annette, Ark. For compensation undercredited in second quarter, 1892		14.42
W. J. Murphy, postmaster, Atlantic, Cal. For compensation undercredited in second quarter, 1892		6.52
C. R. Whitcher, postmaster, Castroville, Cal. For compensation undercredited in second quarter, 1892		125.47
G. M. Coulter, postmaster, Batavia, Cal. For compensation undercredited in second quarter, 1892		19.34
Ezra Barrett, postmaster, Dimond, Cal. For compensation undercredited—		
In first quarter, 1892	$6.64	
In second quarter, 1892	42.46	
		49.10
N. M. Nutt, postmaster, Dutch Flat, Cal. For compensation undercredited in second quarter, 1892		122.30
Frank Frakes, postmaster, Elizabeth Lake, Cal. For compensation undercredited in second quarter, 1892		5.33
C. W. Lyon, postmaster, El Toro, Cal. For compensation undercredited in second quarter, 1892		10.00
A. M. Duncan, postmaster, Fish Rock, Cal. For compensation undercredited in second quarter, 1892		20.86
E. D. Hosselkus, late postmaster, Genesee, Cal. For compensation undercredited in second quarter, 1892		8.82
F. B. Hosselkus, late postmaster, acting, Genesee, Cal. For compensation undercredited in second quarter, 1892		1.83
James Bryden, late postmaster, Honcut, Cal. For compensation undercredited in second quarter, 1892		8.20
M. J. Bryden, postmaster, Honcut, Cal. For compensation undercredited in second quarter, 1892		2.10
A. Celio, postmaster, Lake Valley, Cal. For compensation undercredited in second quarter, 1892		2.50
C. W. Shaeffer, postmaster, La Presa, Cal. For compensation undercredited in second quarter, 1892		5.42
A. W. Blumberg, postmaster, Malitija, Cal. For compensation undercredited in second quarter, 1892		29.05
G. W. Dorwin, postmaster, Melrose, Cal. For compensation undercredited in second quarter, 1892		19.36
G. R. Scholl, postmaster, Messina, Cal. For compensation undercredited—		
In first quarter, 1892	$111.42	
In second quarter, 1892	79.27	
		190.69
D. R. Spooner, late postmaster, Morro, Cal. For compensation undercredited in second quarter, 1892		10.07
S. F. Schneider, postmaster, Morro, Cal. For compensation undercredited in second quarter, 1892		18.30
Daniel Murphy, late postmaster, Needles, Cal. For compensation undercredited in second quarter, 1892		92.09
J. B. Halsey, postmaster, Needles, Cal. For compensation undercredited in second quarter, 1882		136.08

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.		
W. W. Morley, postmaster, Oak Run, Cal. For compensation undercredited—		
In first quarter, 1892	$21.24	
In second quarter, 1892	20.37	
		41.61
C. S. Sullivan, late postmaster, Palm Springs, Cal. For compensation undercredited in first quarter, 1892		13.68
C. S. Sullivan, sureties of late postmaster, Palm Springs, Cal. For compensation undercredited—		
In first quarter, 1892	$41.45	
In second quarter, 1892	54.95	
		96.40
T. E. Blount, postmaster, Rincon, Cal. For compensation undercredited in second quarter, 1892		14.04
G. W. Willfong, late postmaster, Rincon, Cal. For compensation undercredited in second quarter, 1892		10.50
C. W. Smith, postmaster, Rochester, Cal. For compensation undercredited in second quarter, 1892		28.84
J. E. Strahan, postmaster, Toll House, Cal. For compensation undercredited in second quarter, 1892		26.95
C. A. Yancey, late postmaster, Toll House, Cal. For compensation undercredited in second quarter, 1892		5.56
H. McDowell, postmaster, Vineland, Cal. For compensation undercredited in second quarter, 1892		12.41
E. E. Grinnell, late postmaster, Woody, Cal. For compensation undercredited in second quarter, 1892		2.87
T. R. Hooper, postmaster, Woody, Cal. For compensation undercredited in second quarter, 1892		27.81
Margarette Malcom, postmaster, Alder, Colo. For compensation undercredited in second quarter, 1892		15.08
H. A. Wattson, postmaster, Alnwick, Colo. For compensation undercredited in second quarter, 1892		5.89
J. R. Greenlee, postmaster, Arkins, Colo. For compensation undercredited—		
In first quarter, 1892	$35.26	
In second quarter, 1892	35.93	
		71.19
W. H. Schulze, postmaster, Aquilar, Colo. For compensation undercredited in second quarter, 1892		30.28
O. P. M. Butler, postmaster, Barr, Colo. For compensation undercredited in second quarter, 1892		24.96
E. W. Baxter, postmaster, Badito, Colo. For compensation undercredited in second quarter, 1892		8.91
Laura Steele, postmaster, Buford, Colo. For compensation undercredited in second quarter, 1892		29.91
H. G. Sperry, postmaster, Calhan, Colo. For compensation undercredited in second quarter, 1892		50.02
Effie Eaton, postmaster, Cockrell, Colo. For compensation undercredited in second quarter, 1892		12.67
T. B. Sherman, late postmaster, Fort Logan, Colo. For compensation undercredited in second quarter, 1892		23.33
C. W. Drew, postmaster, Fort Logan, Colo. For compensation undercredited in second quarter, 1892		89.70
M. E. Whitney, postmaster, Graneros, Colo. For compensation undercredited—		
In fourth quarter, 1891	$9.98	
In first quarter, 1892	9.29	
In second quarter, 1892	10.26	
		29.53
J. R. McDonald, postmaster, Grant, Colo. For compensation undercredited in second quarter, 1892		44.09
J. W. Arthur, postmaster, Harman, Colo. For compensation undercredited in second quarter, 1892		47.61
Edward Jones, postmaster, Higgins, Colo. For compensation undercredited in second quarter, 1892		42.75
J. E. Shippey, postmaster, Higho, Colo. For compensation undercredited in second quarter, 1892		25.21
W. S. Decker, postmaster, Hudson, Colo. For compensation undercredited in second quarter, 1892		37.77
W. B. Robb, postmaster, Lakewood, Colo. For compensation undercredited in second quarter, 1892		1.79
W. C. Holmes, postmaster, Manhattan, Colo. For compensation undercredited in second quarter, 1892		25.68
H. G. Thornton, postmaster, Manitou Park, Colo. For compensation undercredited in fourth quarter, 1891		.68
J. T. Parlin, postmaster, Parlin, Colo. For compensation undercredited in second quarter, 1892		15.30
Jane Messick, late postmaster, Rehoboth, Del. For compensation undercredited in second quarter, 1892		31.87
John Ruedi, postmaster, Ruedi, Colo. For compensation undercredited in second quarter, 1892		18.54
J. H. Holmes, postmaster, San Juan, Colo. For compensation undercredited in second quarter, 1892		22.73
R. I. Towle, postmaster, Sopinero, Colo. For compensation undercredited in second quarter, 1892		33.02
Thomas Kelly, postmaster, Veteran, Colo. For compensation undercredited in second quarter, 1892		9.10

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.		
C. A. Stokes, postmaster, Killingly, Conn. For compensation undercredited—		
In fourth quarter, 1891	$210.61	
In first quarter, 1892	192.89	
In second quarter, 1892	172.47	
		$575.97
Wm. Conklin, postmaster, Salisbury, Conn. For compensation undercredited in second quarter, 1892		17.12
W. I. Blake, postmaster, South Glastonbury, Conn. For compensation undercredited in second quarter, 1892		3.00
G. M. Bennett, postmaster, Marshallton, Conn. For compensation undercredited—		
In first quarter, 1892	$84.32	
In second quarter, 1892	81.14	
		165.46
V. M. Brandon, late postmaster, Brandon, Fla. For compensation undercredited in first quarter, 1892		1.20
I. A. Boughton, late postmaster, Bridgeport, Fla. For compensation undercredited in second quarter, 1892		13.66
Mitchell Renz, postmaster, Bridgeport, Fla. For compensation undercredited in second quarter, 1892		22.30
C. B. Scull, postmaster, Chattahoochee, Fla. For compensation undercredited in second quarter, 1892		94.79
J. B. Justiss, postmaster, Dellwood, Fla. For compensation undercredited—		
In first quarter, 1892	$18.08	
In second quarter, 1892	16.96	
		35.04
W. C. Valentine, postmaster, Fort Lauderdale, Fla. For compensation undercredited in first quarter, 1892		1.00
Sherman Adams, postmaster, Gabrielle, Fla. For compensation undercredited in second quarter, 1892		1.00
Edwin Nelson, postmaster, Grant, Fla. For compensation undercredited in first quarter, 1892		1.00
J. W. James, postmaster, Liverpool, Fla. For compensation undercredited in second quarter, 1892		12.06
C. H. Monroe, postmaster, Molino, Fla. For compensation undercredited—		
In first quarter, 1892	$42.96	
In second quarter, 1892	43.65	
		86.61
W. A. House, late postmaster, Monte Vista, Fla. For compensation undercredited in third quarter, 1891		9.76
W. A. House, sureties of late postmaster, Monte Vista, Fla. For compensation undercredited in third quarter, 1891		3.47
William Foster, postmaster, South Lake Weir, Fla. For compensation undercredited in second quarter, 1892		1.00
William Stokes, postmaster, Stokes, Fla. For compensation undercredited in second quarter, 1892		19.15
W. A. Moseley, late postmaster, Tropic, Fla. For compensation undercredited in second quarter, 1892		6.85
J. L. Casper, postmaster, Tropic, Fla. For compensation undercredited in second quarter, 1892		16.56
W. A. Bussell, postmaster, Abba, Ga. For compensation undercredited in second quarter, 1892		6.79
B. L. Joiner, postmaster, Andersonville, Ga. For compensation undercredited—		
In first quarter, 1892	$59.82	
In second quarter, 1892	55.62	
		115.44
E. A. Thompson, postmaster, Appleton, Ga. For compensation undercredited in second quarter, 1892		11.10
W. H. Johnson, late postmaster, Asbury, Ga. For compensation undercredited in first quarter, 1892		.21
J. J. Hackney, postmaster, Asbury, Ga. For compensation undercredited in first quarter, 1892		10.07
E. D. Glansier, postmaster, Baconton, Ga. For compensation undercredited in second quarter, 1892		45.89
W. W. Cofer, postmaster, Bessie, Ga. For compensation undercredited in second quarter, 1892		4.74
M. Hendricks, postmaster, Bloys, Ga. For compensation undercredited in second quarter, 1892		9.22
A. R. Bomar, postmaster, Chapel Hill, Ga. For compensation undercredited in second quarter, 1892		38.16
H. A. Jolly, postmaster, Clarkston, Ga. For compensation undercredited in second quarter, 1892		39.27
W. H. Howard, postmaster, Cobb, Ga. For compensation undercredited—		
In first quarter, 1892	$9.43	
In second quarter, 1892	7.14	
		16.57
A. A. Neal, postmaster, Dyson, Ga. For compensation undercredited in second quarter, 1892		3.85
E. M. Henry, late postmaster, Elberton, Ga. For compensation undercredited in third quarter, 1892		8.69
E. Fair, postmaster, Faceville, Ga. For compensation undercredited in first quarter, 1892		.50

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

F. L. Brinson, postmaster, Girth, Ga. For compensation undercredited in second quarter, 1892 ..... $17.33

G. A. Reeves, postmaster, Headstall, Ga. For compensation undercredited in second quarter, 1892 ..... 3.26

J. I. McMillan, postmaster, Lundsberg, Ga. For compensation undercredited in second quarter, 1892 ..... 19.46

H. G. Copelan, postmaster. Liberty, Ga. For compensation undercredited in second quarter, 1892 ..... 2.22

M. G. Copelan, late postmaster, Liberty, Ga. For compensation undercredited in second quarter, 1892 ..... .84

L. A. Nelson, postmaster, Lorane, Ga. For compensation undercredited in second quarter, 1892 ..... 11.07

J. B. Brown, postmaster, Malden Branch, Ga. For compensation undercredited in second quarter, 1892 ..... 29.47

D. Locke, postmaster, Bellevue, Idaho. For compensation undercredited in second quarter, 1892 ..... 1.25

E. Brannan, postmaster, Brannon, Idaho. For compensation undercredited in fourth quarter, 1892 ..... 1.18

J. T. Beers, postmaster, Crawford, Idaho. For compensation undercredited in second quarter, 1892 ..... 27.00

Charles Clifford, postmaster, Eugene, Idaho. For compensation undercredited in second quarter, 1892 ..... .03

C. J. Johnston, postmaster, Redwing, Idaho. For compensation undercredited in second quarter, 1892 ..... 3.69

A. E. Nordland, postmaster, Dahinda, Ill. For compensation undercredited in second quarter, 1892 ..... 36.58

G. S. Dunton, postmaster, Early Dawn, Ill. For compensation undercredited—

In first quarter, 1892	$6.39
In second quarter, 1892	6.06
	12.45

J. W. Reynolds, late postmaster, Eleanor, Ill. For compensation undercredited in second quarter, 1892 ..... 15.13

W. M. Rodgers, postmaster, Eleanor, Ill. For compensation undercredited in second quarter, 1892 ..... 14.64

T. A. Hetrick, postmaster, Florid, Ill. For compensation undercredited in second quarter, 1892 ..... .70

G. S. Bozarth, postmaster, Gillum, Ill. For compensation undercredited—

In first quarter, 1892	$15.68
In second quarter, 1892	15.47
	31.15

H. M. Valentine, late postmaster, Gillum, Ill. For compensation undercredited in first quarter, 1892 ..... 2.50

George Crain, late postmaster, Grubb, Ill. For compensation undercredited—

In first quarter, 1892	$6.58
In second quarter, 1892	1.24
	7.82

J. M. Mecum, postmaster, Grubb, Ill. For compensation undercredited in second quarter, 1892 ..... 6.46

W. S. Pinnell, postmaster, Kansas, Ill. For compensation undercredited in first quarter, 1892 ..... 219.50

Thomas Wilson, postmaster, Latham Park, Ill. For compensation undercredited in second quarter, 1892 ..... 12.90

J. F. Harrison, postmaster, Leaf River, Ill. For compensation undercredited in second quarter, 1892 ..... 1.80

Harriet Seay, postmaster, Loyd, Ill. For compensation undercredited in second quarter, 1892 ..... 2.53

J. Q. Primm, postmaster, Loyd, Ill. For compensation undercredited in second quarter, 1892 ..... 4.08

W. N. Rudd, postmaster, Mount Greenwood, Ill. For compensation undercredited in second quarter, 1892 ..... 250.92

J. L. Bishop, postmaster, Mount Pleasant, Ill. For compensation undercredited in second quarter, 1892 ..... .20

C. H. Kunneman, postmaster, Nameoki, Ill. For compensation undercredited in second quarter, 1892 ..... 20.98

E. S. Peck, late postmaster, North Plato, Ill. For compensation undercredited in second quarter, 1892 ..... 1.14

F. J. Robinson, postmaster, North Plato, Ill. For compensation undercredited in second quarter, 1892 ..... 3.01

W. L. Young, postmaster, Pigeon, Ill. For compensation undercredited in second quarter, 1892 ..... 13.14

T. J. Spaenhower, postmaster, Pisgah, Ill. For compensation undercredited in second quarter, 1892 ..... 35.26

R. S. Rhodes, postmaster, Rhodes, Ill. For compensation undercredited in second quaster, 1892 ..... 2.78

Ralph Harberts, postmaster, Schwer, Ill. For compensation undercredited in second quarter, 1892 ..... 9.00

S. W. Scholl, postmaster, White Oak Springs, Ill. For compensation undercredited—

In first quarter, 1892	$6.98
In second quarter, 1892	5.41
	12.39

W. F. Hermann, postmaster, Woodbine, Ill. For compensation undercredited in second quarter, 1892 ..... 48.56

Henry Holgate, postmaster, Zulu, Ill. For compensation undercredited in second quarter, 1892 ..... 9.84

Estimates of appropriations required for the service of the fiscal years euding June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

Jacob Davis, postmaster, B, Ind For compensation undercredited in second quarter, 1892 ..... $4.99

Joshua Culver, postmaster, Belden, Ind. For compensation undercredited in second quarter, 1892 ..... 5.29

Irwin Berkeypile. postmaster, Benton, Ind. For compensation undercredited in second quarter, 1892 ..... 40.31

S. B. Robbins, postmaster, Cana, Ind. For compensation undercredited in second quarter, 1892 ..... 4.11

R. H. Campbell, postmaster, Dolan, Ind. For compensation undercredited in second quarter, 1892 ..... 4.15

W. O. Laurence, postmaster, Farrville, Ind. For compensation undercredited in second quarter, 1892 ..... 9.43

W. H. Bales, postmaster, Godsey, Ind. For compensation undercredited in second quarter, 1892 ..... 3.42

W. R. Tindolph, late postmaster, Gosport, Ind. For compensation undercredited in second quarter, 1892 ..... 35.55

W. A. Goss, late acting postmaster, Gosport, Ind. For compensation undercredited in second quarter, 1892 ..... 132.99

E. W. Pemberton, postmaster, Jonesboro, Ind. For compensation undercredited in second quarter, 1892 ..... 276.42

Emerson Lemen, late postmaster, McGregor, Ind. For compensation undercredited in second quarter, 1892 ..... .10

Grant Flint, postmaster, McGregor, Ind. For compensation undercredited in second quarter, 1892 ..... 5.18

G. N. Baker, postmaster, Mountain Spring, Ind. For compensation undercredited in second quarter, 1892 ..... 11.52

J. W. Walker, postmaster, Noah, Ind. For compensation undercredited in second quarter, 1892 ..... 4.70

Edward Jackson, postmaster, Noah, Ind. For compensation undercredited in second quarter, 1892 ..... 6.49

W. T. Rivers, postmaster, Providence, Ind. For compensation undercredited in second quarter, 1892 ..... 24.40

J. H. First, late postmaster, Simpson, Ind. For compensation undercredited in second quarter, 1892 ..... 1.41

A. Trovinger, postmaster, Simpson, Ind. For compensation undercredited in second quarter, 1892 ..... 5.84

A. A. Mendenhall, postmaster, Unionport, Ind. For compensation undercredited in second quarter, 1892 ..... 20.96

S. W. Sampson, late postmaster, Willis Grove, Ind. For compensation undercredited in second quarter, 1892 ..... 2.02

O. M. Wilson, postmaster, Willis Grove, Ind. For compensation undercredited in second quarter, 1892 ..... 6.57

R. D. Hagerman, postmaster, Hudson, Ind. T. For compensation undercredited in second quarter, 1892 ..... 13.04

J. P. McNaughton, postmaster, Max, Ind. T. For compensation undercredited in second quarter, 1892 ..... 3.33

N. S. McNair, postmaster, Pecan, Ind. T. For compensation undercredited—

In first quarter, 1892	$10.48
In second quarter, 1892	12.31
	22.79

Moses Pooler, postmaster, Pooler, Ind. T. For compensation undercredited in second quarter, 1892 ..... 1.81

W. C. Rogers, late postmaster, Ski-a-took, Ind. T. For compensation undercredited in second quarter, 1892 ..... 25.11

J. Barricklaw, postmaster, Ski-a-took, Ind. T. For compensation undercredited in second quarter, 1892 ..... 23.47

J. A. Collins, postmaster, Albany, Iowa. For compensation undercredited in second quarter, 1892 ..... 4.14

J. W. Hillyard, postmaster, Alexander, Iowa. For compensation undercredited in second quarter, 1892 ..... 57.78

Emil Hecker, postmaster, Balltown, Iowa. For compensation undercreditcd in second quarter, 1892 ..... 9.29

J. F. Spikes, postmaster, Belinda, Iowa. For compensation undercredited in second quarter, 1892 ..... 24.18

R. P. Orris, postmaster, Brushy, Iowa. For compensation undercredited in second quarter, 1892 ..... 16.84

J. A. Phillips. postmaster, Chisholm, Iowa. For compensation undercredited in second quarter, 1892 ..... 11.00

F. A. Parrott, late postmaster, Coralville, Iowa. For compensation undercredited in second quarter, 1892 ..... 14.42

T. R. Heckett, postmaster, Coralville, Iowa. For compensation undercredited in second quarter, 1892 ..... .72

H. B. Howard, postmaster, Cory, Iowa. For compensation undercredited—

In first quarter, 1892	$12.51
In second quarter, 1892	11.96
	24.47

M. Gibbons, late postmaster, Cory, Iowa. For compensation undercredited in first quarter, 1892 ..... 1.01

Isaac Hall, postmaster, Coster, Iowa. For compensation undercredited in second quarter, 1892 ..... 4.86

Alva Strickler, postmaster, Bon Accord, Iowa. For compensation undercredited in second quarter, 1892 ..... 8.75

C. N. Smith, late postmaster, Bon Accord, Iowa. For compensation undercredited in second quarter, 1892 ..... .47

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

O. F. Wilson, postmaster, Dalton, Iowa. For compensation undercredited in second quarter, 1892		$30.68
W. R. Warren, postmaster, Diamond, Iowa. For compensation undercredited in second quarter, 1892		10.20
G. Lanridson, postmaster, Elkton, Iowa. For compensation undercredited in second quarter, 1892		10.65
J. T. Martin, postmaster, Galion, Iowa. For compensation undercredited in second quarter, 1892		15.51
F. B. Dickey, postmaster, Hazle Green, Iowa. For compensation undercredited in second quarter, 1892		45.98
J. S. Margretz, postmaster, Hitesville, Iowa. For compensation undercredited in second quarter, 1892		20.25
C. B. James, postmaster, Jamestown, Iowa. For compensation undercredited in second quarter, 1892		29.94
G. H. Oustad, postmaster, Leland, Iowa. For compensation undercredited in second quarter, 1892		.25
J. M. Wisdom, postmaster, Maloy, Iowa. For compensation undercredited in second quarter, 1892		63.31
W. D. Morgan, postmaster, Morgan Valley, Iowa. For compensation undercredited in second quarter, 1892		29.75
H. J. Miller, postmaster, Niles, Iowa. For compensation undercredited in first quarter, 1892		3.00
John Paul, postmaster, Onslow, Iowa. For compensation undercredited in second quarter, 1892		94.96
J. H. Keyes, postmaster, Pierson, Iowa. For compensation undercredited in second quarter, 1882		112.58
W. H. Edgar, late postmaster, Rodney, Iowa. For compensation undercredited in second quarter, 1892		10.76
B. W. Henderson, postmaster, Rodney, Iowa. For compensation undercredited in second quarter, 1892		54.77
L. H. Sherman, postmaster, Sully, Iowa. For compensation undercredited in second quarter, 1892		57.85
W. T. Kendall, postmaster, Thompson, Iowa. For compensation undercredited in second quarter, 1892		2.45
H. Kruger, postmaster, Thompson, Iowa. For compensation undercredited in second quarter, 1892		23.30
John Moore, postmaster, Turkey River, Iowa. For compensation undercredited in second quarter, 1892		28.65
A. E. Henry, late postmaster, West Grove, Iowa. For compensation undercredited in second quarter, 1892		43.36
Asa Tremaine, postmaster, West Grove, Iowa. For compensation undercredited—		
In first quarter, 1892	$29.34	
In second quarter, 1892	54.17	
		83.51
C. L. Ireland, late postmaster, Worthington, Iowa. For compensation undercredited in fourth quarter, 1891		2.79
W. S. Richardson, postmaster, Aetna, Kan. For compensation undercredited in second quarter, 1892		16.02
S. A. Furgason, postmaster, Amber, Kan. For compensation undercredited in second quarter, 1892		5.07
S. S. Shivers, postmaster, Bateham, Kans. For compensation undercredited in second quarter, 1892		13.15
A. H. Clark, late postmaster, Chautauqua, Kans. For compensation undercredited in third quarter, 1891		46.64
Otto Anderson, late postmaster, Chepstow, Kans. For compensation undercredited in second quarter, 1892		11.16
Emanuel Anderson, postmaster, Chepstow, Kans. For compensation undercredited in second quarter, 1892		7.57
H. C. Grider, postmaster, Chico, Kans. For compensation undercredited in second quarter, 1892		19.17
Charles Shaff, postmaster, Clover Dale, Kans. For compensation undercredited in second quarter, 1892		31.02
H. N. Kay, late postmaster, Critzer, Kans. For compensation undercredited in first quarter, 1892		3.77
Rena Kay, postmaster, Critzer, Kans. For compensation undercredited—		
In first quarter, 1892	$5.54	
In second quarter, 1892	9.66	
		15.20
C. H. Foss, postmaster, Day, Kans. For compensation undercredited in second quarter, 1892		19.20
J. C. Templeton, postmaster, De Graff, Kans. For compensation undercredited in second quarter, 1892		29.08
G. A. Ramsey, late postmaster, De Graff, Kans. For compensation undercredited in first quarter, 1892		24.22
James Spurgin, postmaster, Delight, Kans. For compensation undercredited in second quarter, 1892		4.49
P. E Roberts, postmaster, Drury, Kans. For compensation undercredited in second quarter, 1892		20.76
R. S. Thomas, postmaster, Dunlap, Kans. For compensation undercredited in second quarter, 1892		103.61
S. E. Van Kunkel, postmaster, Echo, Kans. For compensation undercredited in second quarter, 1892		6.79
J. K. Sayre, postmaster, Ensign, Kans. For compensation undercredited in second quarter, 1892		9.63

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, for the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

A. L. Short, postmaster, Field, Kans. For compensation undercredited in second quarter, 1892		$1.62
P. C. Ball, postmaster, Groveland, Kans. For compensation undercredited in second quarter, 1892		13.69
L. F. Van Osdell, late postmaster, Groveland, Kans. For compensation undercredited in second quarter, 1892		15.56
B. Horan, postmaster, Horaniff, Kans. For compensation undercredited in second quarter, 1892		6.21
W. C. Williams, postmaster, Iowaville, Kans. For compensation undercredited in second quarter, 1892		9.47
M. A. Dulebohn, postmaster, Kearney, Kans. For compensation undercredited in second quarter, 1892		2.34
D. D. Kellogg, postmaster, Kellogg, Kans. For compensation undercredited in second quarter, 1892		34.21
John Moore, postmaster, La Fayette, Kans. For compensation undercredited in second quarter, 1892		17.59
F. M. Goin, postmaster, Leesburg, Kans. For compensation undercredited in second quarter, 1892		10.40
C. E. McEwen, postmaster, Mound Valley, Kans. For compensation undercredited in second quarter, 1892		106.86
C. E. McEwen, late acting postmaster, Mound Valley, Kans. For compensation undercredited in second quarter, 1892		80.20
George Peabody, postmaster, Muscotah, Kans. For compensation undercredited in second quarter, 1892		3.62
E. J. Nadean, postmaster, Nadean, Kans. For compensation undercredited in second quarter, 1892		12.26
J. E. Welty, postmaster, Olpe, Kans. For compensation undercredited in second quarter, 1892		78.10
E. W. Everett, postmaster, Olpe, Kans. For compensation undercredited in second quarter, 1892		4.43
R. S. Drury, postmaster, Passaic, Kans. For compensation undercredited in second quarter, 1892		1.04
D. S. Gray, late postmaster, Pence, Kane. For compensation undercredited in fourth quarter, 1891		5.87
Edwin Colton, postmaster, Pike Creek, Kans. For compensation undercredited in second quarter, 1892		13.35
L. J. Riley, postmaster, Portage, Kans. For compensation undercredited in second quarter, 1892		3.34
H. H. Hopkins, postmaster, Preston, Kans. For compensation undercredited—		
In first quarter, 1892	$34.23	
In second quarter, 1892	78.20	
		112.43
F. E. Wilson, late postmaster, Preston, Kans. For compensation undercredited in first quarter, 1892		53.32
F. H. Lewis, postmaster, Sandago, Kans. For compensation undercredited in second quarter, 1892		4.51
S. C. Garrell, postmaster, Sandago, Kans. For compensation undercredited in second quarter, 1892		.31
C. E. Davis, postmaster, Sharps Creek, Kans. For compensation undercredited in second quarter, 1892		6.85
J. T. Zimmerman, postmaster, Sherwin Junction, Kans. For compensation undercredited in second quarter, 1892		29.64
W. T. Hunter, postmaster, Steuben, Kans. For compensation undercredited in first quarter, 1892		.24
J. P. Terrell, postmaster, Sunnyside, Kans. For compensation undercredited in second quarter, 1892		2.01
H. B. Wiley, postmaster, Taloga, Kans. For compensation undercredited in second quarter, 1892		.02
J. G. Willey, postmaster, Valeda, Kans. For compensation undercredited in second quarter, 1892		39.38
J. G. Spencer, postmaster, Wetmore, Kans. For compensation undercredited in second quarter, 1892		17.14
J. L. Shott, postmaster, Worden, Kans. For compensation undercredited in second quarter, 1892		13.02
L. D. Morgan, postmaster, Abbott, Ky. For compensation undercredited in second quarter, 1892		6.64
D. H. Leonayd, postmaster, Bac, Ky. For compensation undercredited in second quarter, 1892		2.55
John Stubblefield, late postmaster, Big Creek, Ky. For compensation undercredited—		
In first quarter, 1892	$11.49	
In second quarter, 1892	2.45	
		13.94
J. F. Marcus, postmaster, Big Creek, Ky. For compensation undercredited in second quarter, 1892		9.98
C. T. Berry, postmaster, Booker, Ky. For compensation undercredited in second quarter, 1892		4.47
R. C. Hardison, postmaster, Bonayr, Ky. For compensation undercredited in second quarter, 1892		8.80
M. E. Cunningham, late postmaster, Budtown, Ky. For compensation undercredited in fourth quarter, 1891		9.60
A. J. Watson, postmaster, Caney, Ky. For compensation undercredited in second quarter, 1892		6.33
W. W. Johnston, postmaster, Cane Valley, Ky. For compensation undercredited in second quarter, 1892		42.66

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

H. E. Christie, postmaster, Cane Valley, Ky. For compensation undercredited in second quarter, 1892		$8.02
W. R. Sullivan, late postmaster, Cash, Ky. For compensation undercredited in second quarter, 1892		2.68
I. C. Handley, postmaster, Cash, Ky. For compensation undercredited in second quarter, 1892		1.61
J. M. Moss, late postmaster, Catawba, Ky. For compensation undercredited in fourth quarter, 1891		11.94
J. H. Morgan, postmaster, Catawba, Ky. For compensation undercredited in fourth quarter, 1891		23
W. B. Carrier, postmaster, Cullen, Ky. For compensation undercredited in second quarter, 1892		17.68
C. A. Green, postmaster, Cypress, Ky. For compensation undercredited in second quarter, 1892		4.68
T. P. Hays, postmaster, Donerail, Ky. For compensation undercredited in second quarter, 1892		34.20
O. P. Jasper, postmaster, Eastwood, Ky. For compensation underecredited in second quarter, 1392		2.98
Kate Shanley, late postmaster, Fairfield, Ky. For compensation undercredited in second quarter, 189.		10.13
W. D. Jolly, late postmaster, Fairfield, Ky. For compensation undercredited in second quarter, 1892		55.13
G. G. Hamilton, postmaster, Flat Creek, Ky. For compensation undercredited in second quarter, 1892		16.54
B. B. Waller, postmaster, Gilbertsville, Ky. For compensation undercredited in second quarter, 1892		.31
Thomas Hill, late postmaster, Hesler, Ky. For compensation undercredited in fourth quarter, 1891		6.53
James Horton, postmaster, Hope, Ky. For compensation undercredited in second quarter, 1892		6.77
W. F. Jenner, postmaster, Haward, Ky. For compensation undercredited in second quarter, 1892		14.82
J. B. Fraly, late postmaster, Isonville, Ky. For compensation undercredited in second quarter, 1892		5.51
A. M. Pennington, postmaster, Isonville, Ky. For compensation undercredited in second quarter, 1892		3.67
William Bryant, postmaster, Jetts Creek, Ky. For compensation undercredited in second quarter, 1892		7.78
J. T. Yelton, postmaster, Johnsville, Ky. For compensation undercredited—		
In first quarter, 1892	$28.67	
In second quarter, 1892	18.78	
		47.45
W. R. Stapleton, postmaster, Keary, Ky. For compensation undercredited in second quarter, 1892		4.80
Lettie Weddington, postmaster, Little Sandy, Ky. For compensation undercredited in second quarter, 1892		2.61
E. H. Kirtley, postmaster, Lone Star, Ky. For compensation undercredited in second quarter, 1892		5.61
Elizabeth Andrews, postmaster, Maud, Ky. For compensation undercredited in second quarter, 1892		4.42
G. W. Bennett, postmaster, Maxons Mills, Ky. For compensation undercredited in second quarter, 1892		28.30
W. F. Evans, postmaster, Mt. Savage, Ky. For compensation undercredited in second quarter, 1892		17.28
B. H. Crace, postmaster, Nehemiah, Ky. For compensation undercredited in second quarter, 1892		3.09
L. H. Walker, postmaster, Nell, Ky. For compensation undercredited in second quarter, 1892		1.78
E. W. Murphy, postmaster, Newman, Ky. For compensation undercredited—		
In first quarter, 1892	$15.39	
In second quarter, 1892	15.82	
		31.21
J. G. Shepherd, late postmaster, Oak Hill, Ky. For compensation undercredited in second quarter, 1892		1.01
Milford White, postmaster, Oak Hill, Ky. For compensation undercredited in second quarter, 1892		.31
J. E. Spargo, postmaster, Powderly, Ky. For compensation undercredited in second quarter, 1892		20.78
M. F. Boyle, postmaster, Rockdale, Ky. For compensation undercredited in second quarter, 1892		8.71
E. O. Farris, postmaster, Silver Creek, Ky. For compensation undercredited in second quarter, 1892		63.09
J. P. Moddrell, postmaster, Thompsonville, Ky. For compensation undercredited—		
In first quarter, 1892	$1.03	
In second quarter, 1892	.54	
		1.57
M. Rogers, postmaster, Tioga, Ky. For compensation undercredited in second quarter, 1892		6.01
W. F. Bray, postmaster, Vox, Ky. For compensation undercredited in second quarter, 1892		2.13
B. F. Bartlett, postmaster, Waller, Ky. For compensation undercredited in second quarter, 1892		.77
L. C. Roark, postmaster, Quicksand, Ky. For compensation undercredited in second quarter, 1892		23.81

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

J. Von Cissell, postmaster, Raleigh, Ky. For compensation undercredited in second quarter, 1892		$17.56
Walton Wilson, postmaster, Aycock, La. For compensation undercredited in second quarter, 1892		3.74
F. D. Vernon, postmaster, Grigsby, La. For compensation undercredited in second quarter, 1892		4.88
J. A. Carruth, postmaster, Hurstville, La. For compensation undercredited second quarter, 1892		.72
Samuel Johnson, postmaster, Vilas, La. For compensation undercredited in second quarter, 1892		6.67
J. M. Jewell, postmaster, Clinton, Me. For compensation undercredited in second quarter, 1892		182.36
H. E. Evans, late postmaster, Long Beach, Me. For compensation undercredited in third quarter, 1891		120.68
E. W. Robinson, late postmaster, Macwahoc, Me. For compensation undercredited in third quarter, 1891		37.84
Isaac Osgood, postmaster. North Auburn, Me. For compensation undercredited in second quarter, 1892		34.14
L. A. Brooks, postmaster, Parsonfield, Me. For compensation undercredited in second quarter, 1892		24.67
E. K. Taylor, late acting postmaster, Blythedale, Md. For compensation undercredited in second quarter, 1892		9.12
Jeromr Nolter, postmaster, Boring, Md. For compensation undercredited in second quarter, 1892		38.25
D. J. Burdette, postmaster, Burdette, Md. For compensation undercredited in second quarter, 1892		25.44
Francis Shanabrook, postmaster, Charlton Heights, Md. For compensation undercredited—		
In fourth quarter, 1891	$8.50	
In first quarter, 1892	19.93	
In second quarter, 1892	22.68	
		51.11
H. E. Emmons, postmaster, Hardwick, Mass. For cempensation undercredited in second quarter, 1892		29.09
A. E. Knight, late postmaster, Hardwick, Mass. For compensation undercredited in second quarter, 1892		42.73
J. B. Shields, postmaster, Alcona, Mich. For compensation undercredited in second quarter, 1892		31.38
J. L. Vancamp, postmaster, Buel, Mich. For compensation undercredited in second quarter, 1892		12.68
J. L. Wickes, postmaster, Colby, Mich. For compensation undercredited in second quarter, 1892		7.87
G. W. Morris, postmaster, Evans, Mich. For compensation undercredited in third quarter, 1891		.36
M. N. Streeter, late acting postmaster, Evans, Mich. For compensation undercredited in third quarter, 1891		9.44
M. N. Streeter, postmaster, Evans, Mich. For compensation undercredited in third quarter, 1891		7.15
Henry Planz, late postmaster, Germania, Mich. For compensation undercredited in second quarter, 1892		8.47
Barbara Planz, postmaster, Germania, Mich. For compensation undercredited in second quarter, 1892		3.31
G. T. Arnold, postmaster, Mackinac Island, Mich. For compensation undercredited in third quarter, 1891		152.07
C. T. Roberts, late postmaster, Mastodon Mines, Mich. For compensation undecredited in third quarter, 1891		48.39
H. L. Pruden, late postmaster, Oral, Mich. For compensation undercredited in third quarter, 1891		1.82
Peter Lofberg, postmaster, Redruth, Mich. For compensation undercredited in second quarter, 1892		18.10
G. I. Hall, postmaster, Sethton, Mich. For compensation undercredited in second quarter, 1892		13.07
B. L. Delamater, postmaster, Trout Lake, Mich. For compensation undercredited in second quarter, 1892		19.22
C. A. Cole, postmaster, Upton, Mich. For compensation undercredited in second quarter, 1892		10.64
W. M. Carruthers, late postmaster, Viola, Mich. For compensation undercredited in second quarter, 1892		23.06
H. V. Pierce, postmaster, Viola, Mich. For compensation undercredited in second quarter, 1892		41.41
H. J. Roopman, late postmaster, Vogel Center, Mich. For compensation undercredited in fourth quarter, 1891		7.00
Henry Gelenaw, late postmaster, Wise, Mich. For compensation undercredited in first quarter, 1892		8.45
N. C. Kaufman, late postmaster, Cologne, Minn. For compensation undercredited in third quarter, 1891		60.78
W. H. Everest, postmaster, Crow Wing, Minn. For compensation undercredited in second quarter, 1892		23.21
Nich Hemmesch, postmaster, Farming, Minn. For compensation undercredited in second quarter, 1892		10.77
James Rea, portmaster, Greenland, Minr. For compensation undercredited in second quarter, 1892		23.39
John Otterson, postmaster, Hardwick, Minn. For compensation undercredited in second quarter, 1892		32.95

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

E. R. Thompson, postmaster, Mabel, Minn. For compensation undercredited in first quarter, 1892	$127.94
John Brett, postmaster, Mahtown, Minn. For compensation undercredited in second quarter, 1892	36.78
Benjamin D. Shriner, late postmaster, Malmo, Minn. For compensation undercredited in second quarter, 1892	.35
K. H. Slelte, postmaster, Manchester, Minn. For compensation undercredited in second quarter, 1892	23.96
Helena Anton, postmaster, Miesville, Minn. For compensation undercredited in second quarter, 1892	69.69
L. A. Heffner, postmaster, Prairie Junction, Minn. For compensation undercredited in in second quarter, 1892	11.29
W. S. Story, late postmaster, Red Rock, Minn. For compensation undercredited in second quarter, 1892	8.74
A. L. Rice, postmaster, Red Rock, Minn. For compensation undercredited in second quarter, 1892	1.64
F. E. Mulford, late postmaster, Renova, Minn. For compensation undercredited second quarter, 1892	9.66
J. C. Cross, postmaster, Renova, Minn. For compensation undercredited in second quarter, 1892	.76
G. E. Davis, late postmaster, Ross, Minn. For compensation undercredited in second quarter, 1892	3.95
B. A. Nelson, postmaster, Ross, Minn. For compensation undercredited in second quarter, 1892	2.76
S. B. Bedford, postmaster, Rushman, Minn. For compensation undercredited in second quarter, 1892	72.27
Philip Ryan, postmaster, Ryan, Minn. For compensation undercredited in first quarter, 1892	12.76
J. F. Cassin, postmaster, St. Thomas, Minn. For compensation undercredited in second quarter, 1892	24.24
G. D. Bassett, postmaster, Seely, Minn. For compensation undercredited in second quarter, 1892	10.31
A. A. Beaurline, late postmaster, Stanton, Minn. For compensation undercredited in second quarter, 1892	8.29
G. C. Leyh, postmaster, Stanton, Minn. For compensation undercredited in second quarter, 1892	28.82
J. R. Kirkland, postmaster, Baleshed, Miss. For compensation undercredited—	
In first quarter, 1892	$8.73
In second quarter, 1892	17.82
	26.55
A. E. Ott, late postmaster, Bates Mill, Miss. For compensation undercredited in second quarter, 1892	5.68
Sabra Helvestion, late postmaster, Basin, Miss. For compensation undercredited in second quarter, 1892	13.53
P. C. Webb, postmaster, Bates Mill, Miss. For compensation undercredited in second quarter, 1892	19.08
S. M. Dabney, postmaster, Beulah, Miss. For compensation undercredited—	
In first quarter, 1892	$66.93
In second quarter, 1892	63.76
	130.69
J. J. Howell, postmaster, Binford, Miss. For compensation undercredited in second quarter, 1892	3.22
M. L. Tyler, postmaster, Bogue Chitto, Miss. For compensation undercredited in second quarter, 1892	100.58
A. L. Bridges, postmaster, Bridges, Miss. For compensation undercredited in second quarter, 1892	1.46
T. J. Williams, postmaster, Callao, Miss. For compensation undercredited in second quarter, 1892	3.76
J. G. Dozier, postmaster, Cedar Grove, Miss. For compensation undercredited in second quarter, 1892	3.63
I. L. Robinson, postmaster, Dickey, Miss. For compensation undercredited in second quarter, 1862	8.17
H. A. Scroggin, postmaster, Double Springs, Miss. For compensation undercredited in second quarter, 1892	10.11
Victorine Bertram, postmaster, Escatawpa, Miss. For compensation undercredited in second quarter, 1862	1.58
L. J. Carter, postmaster, Esperanza, Miss. For compensation undercredited in second quarter, 1892	2.13
E. M. Caperton, late postmaster, Green Grove, Miss. For compensation undercredited in first quarter, 1892	27.53
E. R. Maxey, postmaster, Green Grove, Miss. For compensation undercredited—	
In first quarter, 1892	$26.17
In second quarter, 1892	48.77
	74.94
C. R. Davis, late postmaster, Hill Side, Miss. For compensation undercredited—	
In third quarter, 1891	$8.65
In fourth quarter, 1891	9.01
In first quarter, 1892	10.47
In second quarter, 1892	9.85
	37.98

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.		
C. L. Wagnon, postmaster, Hollywood, Miss. For compensation undercredited in second quarter, 1892		$47.67
L. A. Bell, late postmaster, Hollywood, Miss. For compensation undercredited in second quarter, 1892		11.86
E. C. Cromeans, late postmaster, Ita, Miss. For compensation undercredited in first quarter, 1892		1.67
M. M. Cromeans, postmaster, Ita, Miss. For compensation undercredited—		
In first quarter, 1892	$2.41	
In second quarter, 1892	6.57	
		8.98
T. T. Meade, postmaster, Ituma, Miss. For compensation undercredited—		
In first quarter, 1892	$24.43	
In second quarter, 1892	25.25	
		49.68
William Kellis, postmaster, Kellis Store, Miss. For compensation undercredited in second quarter, 1892		1.36
M. Southeimer, postmaster, Lamont, Miss. For compensation undercredited—		
In first quarter, 1892	$34.21	
In second quarter, 1892	33.61	
		67.82
W. A. McCown, postmaster, McCown, Miss. For compensation undercredited in second quarter, 1892		4.52
J. B. Cooper, late postmaster, Mhoon Valley, Miss. For compensation undercredited in second quarter, 1892		1.25
J. P. Castles, postmaster, Mhoon Valley, Miss. For compensation undercredited in second quarter, 1892		11.21
J. R. Conlee, postmaster, Midway, Miss. For compensation undercredited in second quarter, 1892		4.74
M. F. Seal, late postmaster, Nicholson, Miss. For compensation undercredited in second quarter, 1892		36.45
F. A. Bourgeois, postmaster, Nicholson, Miss. For compensation undercredited in second quarter, 1892		19.37
P. G. Brett, postmaster, Oakland, Miss. For compensation undercredited—		
In first quarter, 1892	$96.24	
In second quarter, 1892	84.71	
		180.95
J. C. Brooks, postmaster, Oakwood, Miss. For compensation undercredited in second quarter, 1892		55.85
S. F. Bond, late postmaster, Oakwood, Miss. For compensation undercredited in first quarter, 1892		50.91
T. I. Keys, postmaster, Ocean Springs, Miss. For compensation undercredited in second quarter, 1892		2.57
Caroline Newson, postmaster, Progression, Miss. For compensation undercredited in second quarter, 1892		1.31
B. H. McCarty, postmaster, Rising Sun, Miss. For compensation undercredited in second quarter, 1892		21.28
S. Thorman, late postmaster, Roebuck, Miss. For compensation undercredited in second quarter, 1892		6.51
A. N. Childress, postmaster, Roebuck, Miss. For compensation undercredited in second quarter, 1892		8.53
E. W. Bailey, postmaster, Sebastapol, Miss. For compensation undercredited second quarter, 1892		8.64
Dock Royals, postmaster, Shongelo, Miss. For compensation undercredited in second quarter, 1892		34.34
B. B. Toler, late postmaster, Sims, Miss. For compensation undercredited in second quarter, 1892		3.28
Melia Adams, late assistant postmaster, Sims, Miss. For compensation undercredited in second quarter, 1892		2.62
M. C. Thaxton, postmaster, Thaxton, Miss. For compensation undercredited in second quarter, 1892		5.70
N. M. Keith, postmaster, The Gums, Miss. For compensation undercredited in second quarter, 1892		18.72
E. M. Turner, postmaster, Valley Park, Miss. For compensation undercredited in second quarter, 1892		34.68
A. Tacke, postmaster, Arnsberg, Mo. For compensation undercredited in second quarter, 1892		7.45
J. P. McFarland, late postmaster, Ballard, Mo. For compensation undercredited in first quarter, 1892		9.40
R. D. Beatty, postmaster, Ballard, Mo. For compensation undercredited—		
In first quarter, 1892	$20.01	
In second quarter, 1892	24.31	
		44.32
T. W. Foster, postmaster, Cream Ridge, Mo. For compensation undercredited in second quarter, 1892		13.68
J. T. Underwood, postmaster, Fair Play, Mo. For compensation undercredited in second quarter, 1892		156.21
Johanna Lindburg, postmaster, Laclede, Mo. For compensation undercredited in second quarter, 1892		14.96
Emma Spitler, late postmaster, Little Compton, Mo. For compensation undercredited in second quarter, 1892		3.56
J. M. Heaton, postmaster, Little Compton, Mo. For compensation undercredited in second quarter, 1892		1.78
A. D. Pittenger, postmaster, Nashville, Mo. For compensation undercredited in second quarter, 1892		.60

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.		
W. B. Simmons, postmaster, Twane, Mo. For compensation undercredited—		
In first quarter, 1892	$4.29	
In second quarter, 1892	5.57	
		$9.86
D. A. Patton, late postmaster, Woodville, Mo. For compensation undercredited in fourth quarter, 1891		5.41
H. A. Graves, postmaster, Woodville, Mo. For compensation undercredited—		
In fourth quarter, 1891	$15.27	
In first quarter, 1892	23.60	
In second quarter, 1892	18.65	
		57.52
Mant Bray, postmaster, Basinski, Mont. For compensation undercredited in second quarter, 1892		10.90
Elizabeth Beebe, postmaster, Beebe, Mont. For compensation undercredited in second quarter, 1892		34.15
William Molthen, late postmaster, Champion, Mont. For compensation undercredited in second quarter, 1892		21.72
W. D. Nolan, postmaster, Champion, Mont. For compensation undercredited in second quarter, 1892		10.26
W. C. Sincock, postmaster, Clyde Park, Mont. For compensation undercredited in second quarter, 1892		11.76
W. W. Maybee, postmaster, Glasgow, Mont. For compensation undercredited in second quarter, 1892		154.10
I. C. McCord, postmaster, Highwood, Mont. For compensation undercredited in second quarter, 1892		10.59
S. Y. Hotchkiss, postmaster, Hotchkiss, Mont. For compensation undercredited in second quarter, 1892		1.06
J. W. Conner, postmaster, Kalispell, Mont. For compensation undercredited in second quarter, 1892		250.00
W. P. Turner, postmaster, Lucille, Mont. For compensation undercredited in second quarter, 1892		3.32
O. L. Miller, postmaster, Norris, Mont. For compensation undercredited in second quarter, 1892		37.94
A. S. Chamberlain, late postmaster, Abby, Nebr. For compensation undercredited in second quarter, 1892		8.32
E. E. Kuhn, postmaster, Mills, Nebr. For compensation undercredited in second quarter, 1892		14.40
J. M. Harman, late postmaster, Shelton, Nebr. For compensation undercredited in second quarter, 1892		7.15
J. J. Evans, postmaster, Sweetwater, Nebr. For compensation undercredited in second quarter, 1892		.12
B. D. Cassidy, postmaster, Clarks, Nev. For compensation undercredited in second quarter, 1892		4.09
John Shults, postmaster, Bristol, Nev. For compensation undercredited in second quarter, 1892		7.36
C. E. Kennedy, postmaster, Kennedy, Nev. For compensation undercredited in second quarter, 1892		1.86
S. A. Stearns, postmaster, Amoskeag, N. H. For compensation undercredited in second quarter, 1892		126.94
M. M. Butler, postmaster, Columbia, N. H. For compensation undercredited in second quarter, 1892		7.68
G. W. Buss, postmaster, East Ackworth, N. H. For compensation undercredited in second quarter, 1892		19.83
Ann Russ, postmaster, East Pembroke, N. H. For compensation undercredited in second quarter, 1892		23.33
Nelson St. Sauveur, postmaster, North Branch, N. H. For compensation undercredited in third quarter, 1891		32.92
Nelson St. Sauveur, postmaster, North Branch, N. H. For compensation undercredited in fourth quarter, 1891		25.00
Nelson St. Sauveur, postmaster, North Branch, N. H. For compensation undercredited in first quarter, 1892		28.53
Nelson St. Sauveur, postmaster, North Branch, N. H. For compensation undercredited in second quarter, 1892		32.11
A. Y. Stevens, postmaster, Rumney, N. H. For compensation undercredited in second quarter, 1892		75.94
W. E. Hait, postmaster, West Canaan, N. H. For compensation undercredited in second quarter, 1892		42.52
R. R. Miller, late postmaster, Centerton, N. J. For compensation undercredited in second quarter, 1892		1.01
F. F. Collett, postmaster, Centerton, N. J. For compensation undercredited in second quarter, 1892		27.14
Michael Doyle, postmaster, Cooksville, N. J. For compensation undercredited—		
In first quarter, 1892	$9.48	
In second quarter, 1892	13.77	
		23.25
J. H. Sinex, postmaster, Edgewater Park, N. J. For compensation undercredited in second quarter, 1892		81.99
J. T. Reynolds, postmaster, Southard, N. J. For compensation undercredited in second quarter, 1892		7.51
W. D. Haines, postmaster, Vincentown, N. J. For compensation undercredited in second quarter, 1892		.50
H. M. Jewett, postmaster, Winstow, N. J. For compensation undercredited in second quarter, 1892		101.16

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.		
Isabella Rossell, postmaster, Woodmansie, N. J. For compensation undercredited in second quarter, 1892		$1.22
C. W. Dawler, postmaster, Bernal, N. Mex. For compensation undercredited in second quarter, 1892		.27
J. V. Kymer, postmaster, Wykertown, N. J. For compensation undercredited in second quarter, 1892		6.03
H. S. Delgar, postmaster, Joseph, N. Mex. For compensation undercredited in second quarter, 1892		9.12
M. D. Taylor, postmaster, Lima, N. Mex. For compensation undercredited in second quarter, 1892		21.93
Merced Montoya, postmaster, Monticello, N. Mex. For compensation undercredited in second quarter. 1892		30.43
M. M. Pacheco, late postmaster, Pena Flor, N. Mex. For compensation undercredited in second quarter, 1892		23.43
J. J. Romero, postmaster, Pena Flor, N. Mex. For compensation undercredited in second quarter, 1892		11.27
Manfor Romero, postmaster, Quemado, N. Mex. For compensation undercredited—		
In first quarter, 1892	$3.83	
In second quarter, 1892	3.87	
		7.70
Samuel Collins, postmaster, Weed, N. Mex. For compensation undercredited in second quarter, 1892		31.81
J. P. Mills, late postmaster, Ampersand, N. Y. For compensation undercredited in second quarter, 1892		27.55
Sureties of J. P. Mills, late postmaster, Ampersand, N. Y. For compensation undercredited in second quarter, 1892		132.95
C. E. Hunter, postmaster, Benson, N. Y. For compensation undercredited in second quarter, 1892		9.30
P. A. Wing, postmaster, Chestnut Ridge, N. Y. For compensation undercredited in second quarter, 1892		6.32
W. B. Cutler, postmaster, Dover Furnace, N. Y. For compensation undercredited in second quarter, 1892		37.49
J. J. Doney, postmaster, Dugway, N. Y. For compensation undercredited in second quarter, 1892		23.32
J. W. Sickly, postmaster, East Groveland, N. Y. For compensation undercredited in second quarter, 1892		33.49
C. H. Stafford, postmaster, Essex, N. Y. For compensation undercredited in first quarter, 1892		.55
J. D. Blakeman, postmaster, Greenport Center, N. Y. For compensation undercredited in second quarter, 1892		1.82
John Baer, jr., postmaster, Mileses, N. Y. For compensation undercredited in second quarter, 1892		12.29
C. E. Searls, postmaster, New Bremen, N. Y. For compensation undercredited in second quarter, 1892		1.00
T. J. Eldridge, postmaster, North Creek, N. Y. For compensation undercredited in second quarter, 1892		1.13
C. G. Scott, postmaster, Perch River, N. Y. For compensation undercredited in second quarter, 1892		15.35
T. N. Jennings, late postmaster, Pompey Center, N. Y. For compensation undercredited in second quarter, 1892		13.35
M. E. Jennings, postmaster, Pompey Center, N. Y. For compensation undercredited in second quarter, 1892		5.94
Perry Warren, postmaster, South Brookfield, N. Y. For compensation undercredited in second quarter, 1892		11.73
Sureties of Perry Warren, late postmaster, South Brookfield, N. Y. For compensation undercredited in second quarter, 1892		1.39
F. M. Slayton, postmaster, Tully Lake Park, N. Y. For compensation undercredited in second quarter, 1892		7.98
G. H. Vann, late acting postmaster, Willow Creek, N. Y. For compensation undercredited in second quarter, 1892		28.24
J. M. Suiter, postmaster, St. Louis, Mont. For compensation undercredited in third quarter, 1891		19.66
Davius Sibley, postmaster, Amboy, Mich. For compensation undercredited in second quarter, 1892		7.29
F. O. Reynolds, postmaster, Atkins, Mich. For compensation undercredited in second quarter, 1892		45.00
Henry Leppla, late postmaster, Rainbow, Wis. For compensation undercredited in third quarter, 1891		9.21
J. H. Hendley, postmaster, Ansonville, N. C. For compensation undercredited in second quarter, 1892		35.73
H. E. Byrd, postmaster, Athlone, N. C. For compensation undercredited in second quarter, 1892		1.49
W. W. Teague, postmaster, Bentley, N. C. For compensation undercredited in second quarter, 1892		3.65
F. B. Flake, postmaster, Beverly, N. C. For compensation undercredited in second quarter, 1892		8.59
J. A. Norwood, postmaster, Buchanan, N. C. For compensation undercredited in second quarter, 1892		13.63
W. P. Bryant, postmaster, California Creek, N. C. For compensation undercredited in second quarter, 1892		5.89
P. G. Alston, postmaster, Centerville, N. C. For compensation undercredited in second quarter, 1892		32.86
J. S. Thompson, postmaster, Charm, N. C. For compensation undercredited in second quarter, 1892		1.47

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.		
J. L. Firesheets, postmaster, Estille, N. C. For compensation undercredited in second quarter, 1892		$20.53
Dr. Ledbetter, postmaster, Fruitland, N. C. For compensation undercredited in second quarter, 1892		3.78
E. C. Hedden, postmaster, Glenville, N. C. For compensation undercredited in second quarter, 1892		50.65
W. J. Morrison, postmaster, Holly Bush, N. C. For compensation undercredited in second quarter, 1892		12.12
J. H. Price, postmaster, Lime Rock, N. C. For compensation undercredited in second quarter, 1892		2.26
J. M. Cox, postmaster, McNair, N. C. For compensation undercredited—		
In first quarter, 1892	$9.32	
In second quarter, 1892	7.59	
		16.91
S. A. Gray, postmaster, Manteo, N. C. For compensation undercredited in second quarter, 1892		8.64
Robert Brooks, postmaster, Mill Creek, N. C. For compensation undercredited in second quarter, 1892		9.56
M. E. Carroll, postmaster, Neatman, N. C. For compensation undercredited in second quarter, 1892		.10
Emma Jones, postmaster, Pocomoke, N. C. For compensation undercredited in second quarter, 1892		2.95
I. J. Frizzle, postmaster, Roundtree, N. C. For compensation undercredited in second quarter, 1892		6.71
J. D. Cavenaugh, postmaster, South Washington, N. C. For compensation undercredited in second quarter, 1892		24.09
C. C. Hilliard, late postmaster, Sweet Water, N. C. For compensation undercredited in third quarter, 1891		1.61
Elizabeth Ford, postmaster, Atwill, N. Dak. For compensation undercredited in second quarter, 1892		1.60
George Worster, postmaster, Durbin, N. Dak. For compensation undercredited in second quarter, 1892		51.19
S. O. Morgan, postmaster, Glen Ullin, N. Dak. For compensation undercredited in second quarter, 1892		68.59
A. Hoople, postmaster, Hoople, N. Dak. For compensation undercredited in second quarter, 1892		79.92
John Hennessy, postmaster, Harrisburg, N. Dak. For compensation undercredited—		
In first quarter, 1892	$28.07	
In second quarter, 1892	27.21	
		55.28
William Hutton, postmaster, Mona, N. Dak. For compensation undercredited—		
In first quarter, 1892	$10.53	
In second quarter, 1892	8.94	
		19.47
W. A. Power, postmaster, Power, N. Dak. For compensation undercredited in second quarter, 1892		28.13
James McDermott, late postmaster, Musselman, Ohio. For compensation undercredited—		
In first quarter, 1892	$13.63	
In second quarter, 1892	7.89	
		21.52
W. I. Gibson, postmaster, Musselman, Ohio. For compensation undercredited in second quarter, 1892		3.05
M. M. Phillips, postmaster, New England, Ohio. For compensation undercredited in second quarter, 1892		1.00
M. B. Clark, postmaster, North Richmond, Ohio. For compensation undercredited in second quarter, 1892		17.63
J. W. McFadden, postmaster, Ogden, Ohio. For compensation undercredited in second quarter, 1892		32.58
S. A. Woodward, postmaster, Pursell, Ohio. For compensation undercredited in second quarter, 1892		9.22
Margaret Gallagher, postmaster, St. Martins, Ohio. For compensation undercredited in second quarter, 1892		114.61
C. H. Koppenhafer, postmaster, Shinrock, Ohio. For compensation undercredited in second quarter, 1892		74.65
Chas. Schneider, postmaster, Snyder, Ohio. For compensation undercredited in second quarter, 1892		3.33
Robert Green, postmaster, Stoneville, Ohio. For compensation undercredited in second quarter, 1892		6.11
J. P. George, postmaster, Uniontown, Ohio. For compensation undercredited in second quarter, 1892		24.60
H. N. Ruth, postmaster, Vanderhoof, Ohio. For compensation undercredited in second quarter, 1892		17.58
Peter Wahl, postmaster, Wahlsburg, Ohio. For compensation undercredited in second quarter, 1892		12.85
W. W. Walker, postmaster, Walkers, Ohio. For compensation undercredited in second quarter, 1892		30.53
J. W. Wilkins, postmaster, Whisler, Ohio. For compensation undercredited in first quarter, 1892		29.30
B. T. Thompson, postmaster, Darlington, Okla. For compensation undercredited in second quarter, 1892		19.42
S. S. Bolsinger, postmaster, Brockway, Oregon. For compensation undercredited in second quarter, 1892		12.14

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079. sec. 1)—Continued.

G. H. Irwin late postmaster, Chemawa, Oregon. For compensation undercredited in second quarter, 1892		$37.59
L. M. Savage, postmaster, Chemawa, Oregon. For compensation undercredited in second quarter, 1892		24.97
J. B. Davis, postmaster, Juniper, Oregon. For compensation undercredited—		
In first quarter, 1892	$9.83	
In second quarter, 1892	10.72	
		20.55
Henry Chambers, late postmaster, Kings Valley, Oregon. For compensation undercredited in second quarter, 1892		17.84
A. H. Miller, postmaster, Kings Valley, Oregon. For compensation undercredited in second qurrter, 1892		10.29
E. F. Stiles, late postmaster, Point Terrace, Oregon. For compensation undercredited in second quarter, 1892		12.29
George Landrith, late postmaster, Siuslaw, Oregon. For compensation undercredited—		
In third quarter, 1891	$4.53	
In fourth quarter, 1891	5.82	
In first quarter, 1892	8.03	
In second quarter, 1892	6.00	
		24.38
M. L. Wilmot, late postmaster, Springfield, Oregon. For compensation undercredited in second quarter, 1892		29.85
G. H. Yerington, postmaster, Springfield, Oregon. For compensation undercredited in second quarter, 1892		65.84
R. H. Dossat, postmaster, Bertie, La. For compensation undercredited in second quarter, 1892		30.76
J. C. Albin, postmaster, Independence, La. For compensation undercredited—		
In first quarter, 1892	$39.39	
In second quarter, 1892	41.36	
		80.75
J. M. Griggs, postmaster, Indian Village, La. For compensation undercredited in second quarter, 1892		13.50
Octavius Carville, postmaster, Island, La. For compensation undercredited in first quarter, 1892		27.40
John Markham, postmaster, Scally, La. For compensation undercredited in second quarter, 1892		26.69
Ellen Connors, postmaster, St. Francis, La. For compensation undercredited in third quarter, 1891		5.22
R. E. Swain, postmaster, West Leeds, Me. For compensation undercredited in second quarter, 1892		12.61
. E. Hills, postmaster, Salisbury Beach, Mass. For compensation undercredited in second quarter, 1892		3.71
G. S. Cheyney, postmaster, Cheney, Pa. For compensation undercredited in second quarter, 1892		74.71
Merritt Greene, late postmaster, Ellward City, Pa. For compensation undercredited in second quarter, 1892		144.30
A. F. McMahon, postmaster, Holt, Pa. For compensation undercredited in second quarter, 1892		18.06
Valentine Kunes, postmaster, Keewayden, Pa. For compensation undercredited in second quarter, 1892		1.00
T. C. Feeg, postmaster, Krick's Mill, Pa. For compensation undercredited in second quarter, 1892		6.03
W. H. Perrego, postmaster, Laketon, Pa. For compensation undercredited in second quarter, 1892		7.25
T. B. Goshorn, postmaster, McNeal, Pa. For compensation undercredited in second quarter, 1892		11.42
S. R. Getty, postmaster, Madisonburg, Pa. For compensation undercredited in second quarter, 1892		36.33
W J. Bussard, postmaster, Mench, Pa. For compensation undercredited in third quarter, 1891		7.15
E. D. Scott, postmaster, Mixtown, Pa. For compensation undercredited in second quarter, 1892		2.75
M. H. Trivley, postmaster, Mountain Valley, Pa. For compensation undercredited in second quarter, 1892		5.53
Benjamin Heffelfinger, postmaster, Mount Ætna, Pa. For compensation undercredited in second quarter, 1892		43.31
I. N. Thompson, postmaster, Mount Hope, Pa. For compensation undercredited in second quarter, 1892		87.09
G. A. Richardson, postmaster, New Garden, Pa. For compensation undercredited in second quarter, 1892		19.75
M. E. Caven, postmaster, North Sewickley, Pa. For compensation undercredited in second quarter, 1892		29.58
R. W. Cobb, postmaster, Opposition, Pa. For compensation undercredited in first quarter, 1892		.02
H. D. Renninger, late postmaster, Pricetown, Pa. For compensation undercredited in fourth quarter, 1891		2.00
A. S. Reist, late acting Wm. Reist, late postmaster, Reistville, Pa. For compensation undercredited in first quarter, 1892		5.65
J. J. Bennitch, postmaster, Reistville, Pa. For compensation undercredited—		
In first quarter, 1892	$14.22	
In second quarter, 1892	12.68	
		26.90
James Ogden, postmaster, Rosenvick, Pa. For compensation undercredited in second quarter, 1892		14.65

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

A. Kitz, postmaster, Sandy Ridge, Pa. For compensation undercredited in second quarter, 1892		$26.15
H. A. Saylor, postmaster, Seiberlingville, Pa. For compensation undercredited in second quarter, 1892		2.98
M. B. Hughes, postmaster, Schickshinny, Pa. For compensation undercredited in second quarter, 1892		263.67
J. C. Kulp, postmaster, Skippack, Pa. For compensation undercredited in second quarter, 1892		52.59
E. E. Lewis, postmaster, Smathers, Pa. For compensation undercredited in second quarter, 1892		6.70
E. H. Harris, postmaster, Smith Branch, Pa. For compensation undercredited in second quarter, 1892		10.92
Miles Lentz, postmaster, Tombs Run, Pa. For compensation undercredited in second quarter, 1892		13.41
J. M. Raught, postmaster, Warsaw, Pa. For compensation undercredited in second quarter 1892		24.68
Willis Conable, postmaster, West Branch, Pa. For compensation undercredited—		
In third quarter, 1891	$4.75	
In first quarter, 1892	18.75	
		23.50
Thomas Keelor, postmaster, Wetmore, Pa. For compensation undercredited in second quarter, 1892		39.97
Z. T. Fowler, postmaster, Willow Spring, Pa. For compensation undercredited in second quarter, 1892		15.93
E. M. Kerr, postmaster, Wylandville, Pa. For compensation undercredited—		
In first quarter, 1892	$24.59	
In second quarter, 1892	21.87	
		46.46
W. O. Holmes, postmaster, Almada, S. C. For compensation undercredited in second quarter, 1892		12.73
E. R. Hill, postmaster, Bath, S. C. For compensation undercredited in first quarter, 1892		38.29
Wade Osborne, postmaster, Cabal, S. C. For compensation undercredited in second quarter, 1892		3.89
M. L. Caldwell, postmaster, Caldwell, S. C. For compensation undercredited in second quarter, 1892		1.94
T. McAllister, postmaster, Calhouns Mills, S. C. For compensation undercredited—		
In first quarter, 1892	$7.06	
In second quarter, 1892	6.22	
		13.28
G. T. Sims, postmaster, Dawkins, S. C. For compensation undercredited in second quarter, 1892		17.07
M. A. Padgett, postmaster, Delphia, S. C. For compensation undercredited in second quarter, 1892		4.17
J. H. Holcomb, postmaster, Dover, S. C. For compensation undercredited—		
In third quarter, 1891	$1.32	
In fourth quarter, 1891	1.05	
		2.37
M. L. Guthrie, postmaster, Goucher, S. C. For compensation undercredited in second quarter, 1892		4.05
H. P. Moore, postmaster, Greer's Depot, S. C. For compensation undercredited—		
In first quarter, 1892	$61.29	
In second quarter, 1892	78.92	
		140.21
L. A. McGill, postmaster, Hero, S. C. For compensation undercredited in second quarter, 1892		3.06
J. B. Campbell, postmaster, Jalapa, S. C. For compensation undercredited in second quarter, 1892		9.73
J. B. Mayes, postmaster, Kennerly, S. C. For compensation undercredited in second quarter, 1892		2.25
E. A. Gilbert, postmaster, Lebanon, S. C. For compensation undercredited—		
In first quarter, 1892	$2.02	
In second quarter, 1892	1.87	
		3.89
T. M. Vise, postmaster, Woodruff, S. C. For compensation undercredited in first quarter, 1892		19.93
T. M. Vise, postmaiter, Woodruff, S. C. For compensation undercredited in second quarter, 1892		67.97
T. I. Walker, late postmaster, Woodruffs, S. C. For compensation undercredited in first quarter, 1892		68.36
A. Greenbaum, postmaster, Crow Creek, S. Dak. For compensation undercredited in second quarter, 1892		45.32
S. E. Smith, postmaster, Farwell, S. Dak. For compensation undercredited in second quarter, 1892		10.00
J. W. Barnes, postmaster, Kilborn, S. Dak. For compensation undercredited in second quarter, 1892		2.82
G. W. Grarn, late postmaster, Kranzburg, S. Dak. For compensation undercredited in second quarter, 1892		.12
T. J. Collins, postmaster, Lake City, S. Dak. For compensation undercredited in second quarter, 1892		1.64
C. Hellekson, postmaster, Presho, S. Dak. For compensation undercredited in second quarter, 1892		2.21

Estimates of appropriations required for the service of the fiscal years ending June 30 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

F. J. Boehmer, postmaster, Scranton, S. Dak. For compensation undercredited in second quarter, 1892		$17 04
P. S. McCrae, postmaster, Almaville, Tenn. For compensation undercredited in second quarter, 1892		8.76
H. Rushing, postmaster, Ariadne, Tenn. For compensation undercredited in first quarter, 1892		6 97
J. H. Overby, postmaster, Awalt, Tenn. For compensation undercredited in second quarter, 1892		15.94
W. H. Caldwell, postmaster, Clayton, Tenn. For compensation undercredited in second quarter, 1892		15.82
J. E. Douglass, postmaster, Douglas Shed, Tenn. For compensation undercredited in second quarter, 1892		6 43
W. O. Edwards, postmaster, Gibbs, Tenn. For compensation undercredited in second quarter, 1892		6 06
W. F. Cole, late postmaster, Minor Hill, Tenn. For compensation undercredited in second quarter, 1892		5.71
Pearl Yarbrough, postmaster, Minor Hill, Tenn. For compensation undercredited in second quarter, 1892		3 90
F. B. McElwee, postmaster, Mount Verd, Tenn. For compensation undercredited in second quarter, 1892		8.75
A. M. Pettey, postmaster, Owlhollow, Tenn. For compensation undercredited in second quarter, 1892		7 53
F. L. Morton, late postmaster, Pinkard, Tenn. For compensation undercredited in second quarter, 1892		5.58
W. D. Sneed, postmaster, Pinkard, Tenn. For compensation undercredited in second quarter, 1892		5.22
R. C. Rhea, postmaster, Rheas Forge, Tenn. For compensation undercredited in second quarter, 1892		5.39
S. D. Easby, postmaster, Rockdale, Tenn. For compensation undercredited in second quarter, 1892		14.69
W. P. Prater, postmaster, Rucker, Tenn. For compensation undercredited in second quarter, 1892		27.89
J. T. Justus, postmaster, Springhouse, Tenn. For compensation undercredited in second quarter, 1892		27.81
D. W. Woodell, postmaster, Steppsville, Tenn. For compensation undercredited in second quarter, 1892		7.40
J. M. Rice, postmaster, Sweetser, Tenn. For compensation undercredited in second quarter, 1892		3.92
A. J. Foster, postmaster, Walts, Tenn. For compensation undercredited—		
In first quarter, 1892	$6.30	
In second quarter, 1892	1.01	
		7.31
A. J. York, postmaster, Walts, Tenn. For compensation undercredited in second quarter, 1892		4.19
J. L. Goolsby, late postmaster, Americus, Tex. For compensation undercredited in first quarter, 1892		3.20
V. A. Taylor, postmaster, Americus, Tex. For compensation undercredited in second quarter, 1892		4.68
M. L. Watts, postmaster, Arcadia, Tex. For compensation undercredited—		
In third quarter, 1891	$12.01	
In fourth quarter, 1891	21.66	
In first quarter, 1892	24.50	
In second quarter, 1892	22.87	
		81.04
H. J. Townsend, postmaster, Auburn, Tex. For compensation undercredited—		
In first quarter, 1892	$56.39	
In second quarter, 1892	52.43	
		108.82
W. L. Buchen, postmaster, Belle Plaine, Tex. For compensation undercredited in first quarter, 1892		.03
R. T. Holt, postmaster, Bluff Dale, Tex. For compensation undercredited in second quarter, 1892		69.26
W. H. Reynolds, postmaster, Buckner, Tex. For compensation undercredited in second quarter, 1882		15.04
J. B. Redmond, postmaster, Carrizo, Tex. For compensation undercredited in second quarter, 1892		35.38
T. J. Harnic, postmaster, Chalk Mountain, Tex. For compensation undercredited in second quarter, 1892		33.78
T. T. Callaway, postmaster, Como, Tex. For compensation undercredited in second quarter, 1892		8.41
S. A. McDonald, late postmaster, Como, Tex. For compensation undercredited in second quarter, 1892		4.54
S. E. Mahaffey, late postmaster, Concrete, Tex. For compensation undercredited in second quarter, 1892		2.58
M. S. Coppedge, postmaster, Concrete, Tex. For compensation undercredited in second quarter, 1892		6.87
J. G. Williford, postmaster, Dallardsville, Tex. For compensation undercredited second quarter, 1892		2.45
J. A. Drennon, postmaster, Equestria, Tex. For compensation undercredited in second quarter, 1892		6.40
E. E. Mills, late postmaster, Gay Hill, Tex. For compensation undercredited—		
In first quarter, 1892	$42.77	
In second quarter, 1892	20.49	
		63.26

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.

W. J. Bledsoe, postmaster, Gay Hill, Tex. For compensation undercredited in second quarter, 1892		$18.95
W. P. Stewart, postmaster, Gertrude, Tex. For compensation undercredited in second quarter, 1892		19.61
A. L. Keele, postmaster, Groesbeck, Tex. For compensation undercredited in second quarter, 1892		250.00
J. H. Miller, postmaster, Hawkeye, Tex. For compensation undercredited in second quarter, 1892		5.27
J. S. Crawford, postmaster, Jacksboro, Tex. For compensation undercredited in second quarter, 1892		228.06
J. T. Arnold, late postmaster, Jameson, Tex. For compensation undercredited in second quarter, 1892		4.96
A. L. Lackey, postmaster, Jameson, Tex. For compensation undercredited in second quarter, 1892		11.90
E. T. Brown, postmaster, Kanawha, Tex. For compensation undercredited in second quarter, 1892		7.85
L. O. Iveson, postmaster, Kendleton, Tex. For compensation undercredited in second quarter, 1892		26.12
W. N. Blackshear, postmaster, Klein, Tex. For compensation undercredited in second quarter, 1892		7.25
W. V. Carraway, postmaster, La Nana, Tex. For compensation undercredited in second quarter, 1892		35.23
C. C. Watterson, late postmaster, Live Oaks, Tex. For compensation undercredited in fourth quarter, 1891		.99
C. A. T. Whitfield, late postmaster, Liverpool, Tex. For compensation undercredited in second quarter, 1892		4.55
M. A. Wehrly, postmaster, Liverpool, Tex. For compensation undercredited in second quarter, 1892		9.74
F. C. Willburn, postmaster, Llano, Tex. For compensation undercredited in second quarter, 1892		264.21
A. F. Dodson, postmaster, Mayshaw, Tex. For compensation undercredited in second quarter, 1892		7.59
W. C. Jefferson, postmaster, Mills, Tex. For compensation undercredited in second quarter, 1892		4.88
Julia Bock, late postmaster, Morales, Tex. For compensation undercredited in second quarter, 1892		6.72
W. M. Moore, late acting postmaster, Morales, Tex. For compensation undercredited in second quarter, 1892		14.92
R. H. Grant, postmaster, Myers, Tex. For compensation undercredited in second quarter, 1892		2.88
W. W. Decker, late postmaster, Norton, Tex. For compensation undercredited—		
In third quarter, 1891	$11.64	
In fourth quarter, 1891	.19	11.83
D. H. L. Bonner, postmaster, Omen, Tex. For compensation undercredited—		
In first quarter, 1892	$50.70	
In second quarter, 1892	90.01	140.71
J. R. Eskridge, late postmaster, Omen, Tex. For compensation undercredited in first quarter, 1892		46.81
M. A. Orr, postmaster, Orrville, Tex. For compensation undercredited in second quarter, 1892		1.72
W. T. Bacon, postmaster, Ovid, Tex. For compensation undercredited in second quarter, 1892		3.63
E. W. Zimmerman, postmaster, Plank, Tex. For compensation undercredited in second quarter, 1892		70.47
J. G. Laughlin, postmaster, Ruth, Tex. For compensation undercredited in second quarter, 1892		16.20
C. E. Townsend, postmaster, Sansom, Tex. For compensation undercredited in second quarter, 1892		64.72
J. R. Powell, postmaster, Tolar, Tex. For compensation undercredited—		
In first quarter, 1892	$20.61	
In second quarter, 1892	21.50	42.11
J. W. Still, postmaster, Terryville, Tex. For compensation undercredited in second quarter, 1892		10.73
W. C. Thrift, late postmaster, Terryville, Tex. For compensation undercredited in second quarter, 1892		2.34
Martha Curtis, postmaster, Ferron, Utah. For compensation undercredited in second quarter, 1892		34.19
W. H. Oliver, postmaster, Ringgold, Va. For compensation undercredited in second quarter, 1892		49.63
M. W. Mansfield, postmaster, Thurber, Utah. For compensation undercredited in second quarter, 1892		19.77
James Jensen, postmaster, View, Utah. For compensation undercredited in second quarter, 1892		16.22
A. M. Allison, postmaster, Blanche, W. Va. For compensation undercredited in second quarter, 1892		1.75
Peter Meadows, postmaster, Bryan, W. Va. For compensation undercredited in second quarter, 1892		6.82
Warfield Watkins, postmaster, Tender, Va. For compensation undercredited—		
In fourth quarter, 1891	$6.23	
In first quarter, 1892	8.37	
In second quarter, 1892	8.45	23.05

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.		
Rada Pigg, postmaster, Piggs, Va. For compensation undercredited in second quarter, 1892		$12.19
R. P. Lindsay, postmaster, Rodes, Va. For compensation undercredited in third quarter, 1892		1.66
D. T. Hogan, late postmaster, Sandy Ford, Va. For compensation undercredited—		
In third quarter, 1891	$11.33	
In second quarter, 1892	10.76	
		21.89
G. H. Chaplin, postmaster, Stone Mountain, Va. For compensation undercredited in second quarter, 1892		1.69
A. S. Rudd, postmaster, Thistle, Va. For compensation undercredited in third quarter, 1891		4.59
W. S. Nuckolls, late postmaster, Vigor, Va. For compensation undercredited in third quarter, 1891		13.57
W. S. Nuckolls, sureties of, late postmaster, Vigor, Va. For compensation undercredited in third quarter, 1891		1.87
A. J. Davis, postmaster, Wolf Glade, Va. For compensation undercredited in second quarter, 1892		10.47
H. T. Shufflebarger, postmaster, Yards, Va. For compensation undercredited in second quarter, 1892		12.80
C. B. Allen, postmaster, Fort Canby, Wash. For compensation undercredited in second quarter, 1892		6.00
M. A. Carr, postmaster, Richardson, Wash. For compensation undercredited in second quarter, 1892		1.00
J. M. Allison, postmaster, Majorsville, W. Va. For compensation undercredited in second quarter, 1892		.39
M. H. Marston, postmaster, Omps, W. Va. For compensation undercredited in second quarter, 1892		1.00
C. N. Snodgrass, postmaster, Rosedale, W. Va. For compensation undercredited in second quarter, 1892		8.09
C. A. Curtis, postmaster, Roxie, W. Va. For compensation undercredited—		
In first quarter, 1892	$3.49	
In second quarter, 1892	4.58	
		8.07
J. A. Huff, late postmaster, Roxie, W. Va. For compensation undercredited in first quarter, 1892		1.21
Jacob Durig, late postmaster, Sterling, W. Va. For compensation undercredited in second quarter, 1892		1.38
George Goad, postmaster, Strange Creek, W. Va. For compensation undercredited in second quarter, 1892		11.72
W. B. McGlothlin, sureties of, postmaster, Tariff, W. Va. For compensation undercredited in first quarter, 1892		1.73
A. J. Jarrell, postmaster, Van, W. Va. For compensation undercredited in first quarter, 1892		4.56
W. C. Crockett, postmaster, Warford, W. Va. For compensation undercredited in second quarter, 1892		11.14
Jacob Higgins, postmaster, West, W. Va. For compensation undercredited in second quarter, 1892		4.76
Lawrason Levering, postmaster, Wilsonia, W. Va. For compensation undercredited in second quarter, 1892		15.94
M. A. D. Foot, postmaster, Andrus, Wis. For compensation undercredited—		
In first quarter, 1892	$1.22	
In second quarter, 1892	1.65	
		2.87
J. T. Enloe, late postmaster, Arthur, Wis. For compensation undercredited in first quarter, 1892		3.40
John Eustice, postmaster, Arthur, Wis. For compensation undercredited—		
In first quarter, 1892	$8.95	
In second quarter, 1892	12.73	
		21.68
George Montgomery, postmaster, Bashan, Wis. For compensation undercredited—		
In first quarter, 1892	$8.67	
In second quarter, 1892	7.83	
		16.50
Frank Leisner, postmaster, Cedar Rapids, Wis. For compensation undercredited in second quarter, 1892		4.43
J. H. Cottingham, postmaster, Cuba City, Wis. For compensation undercredited—		
In first quarter, 1892	$96.00	
In second quarter, 1892	87.36	
		183.36
Chris Clasen, postmaster, Duplainville, Wis. For compensation undercredited in second quarter, 1892		20.06
F. L. Hoffman, postmaster, East Middleton, Wis. For compensation undercredited in second quarter, 1892		12.18
Barbara Smith, postmaster, Elton, Wis. For compensation undercredited in second quarter, 1892		2.83
S. T. Foxen, late postmaster, Garfield, Wis. For compensation undercredited in second quarter, 1892		.89
J. A. Hole, postmaster, Garfield, Wis. For compensation undercredited in second quarter, 1892		8.14
I. O. Isaacson, postmaster, Isaacson, Wis. For compensation undercredited in second quarter, 1892		7.30

Estimates of appropriations required for the service of the fiscal years ending June 30, 1891 and 1892, by the Post-Office Department—Continued.

Compensation of postmasters (act Mar. 3, 1891, vol. 26, p. 1079, sec. 1)—Continued.		
H. A. Van Galder, late postmaster, Jeffris, Wis. For compensation undercredited—		
In first quarter, 1892	$46.85	
In second quarter, 1892	29.68	
		$76.53
D. K. Jeffris, postmaster, Jeffris, Wis. For compensation undercredited in second quarter, 1892		9.18
G. B. Gilbertson, postmaster, Keyeser, Wis. For compensation undercredited in second quarter, 1892		15.47
M. Stetzner, late postmaster, Kohler, Wis. For compensation undercredited in second quarter, 1892		1.25
Dan Wittlinger, postmaster, Kohler, Wis. For compensation undercredited in second quarter, 1892		3.00
John Credicott, late postmaster, Little Prairie, Wis. For compensation undercredited in second quarter, 1892		12.84
Helen Credicott, postmaster, Little Prairie, Wis. For compensation undercredited in second quarter, 1892		8.59
H. M. Lord, postmaster, Oconto Falls, Wis. For compensation undercredited in second quarter, 1892		36.33
A. J. Caldwell, late postmaster, Oconto Falls, Wis. For compensation undercredited in second quarter, 1892		30.32
Henry Hyde, postmaster, Perley, Wis. For compensation undercredited in second quarter, 1892		22.42
Louis Kerl, postmaster, Rhine, Wis. For compensation undercredited in second quarter, 1892		16.47
W. J. Evans, postmaster, Ridgeway, Wis. For compensation undercredited in first quarter, 1892		.67
Frank Metcalf, postmaster, Rodney, Wis. For compensation undercredited—		
In fourth quarter, 1891	$4.93	
In second quarter, 1892	6.22	
		11.15
W. F. Steves, postmaster, Round Lake. For compensation undercredited in second quarter, 1892		6.31
George Hammer, postmaster, Silver Spring, Wis. For compensation undercredited in second quarter, 1892		5.14
Alfred Cook, postmaster, Unity, Wis. For compensation undercredited—		
In third quarter, 1891	$75.80	
In fourth quarter, 1891	115.32	
In second quarter, 1892	102.64	
		293.76
John Trentlage, postmaster, Waucousta, Wis. For compensation undercredited in second quarter, 1892		10.17
Amount to cover claims now being audited and to be audited		100,000.00
Total compensation of postmasters, 1892		470,116.39

RECAPITULATION.

Advertising:	
1891	$21.12
1892	379.74
Postage stamps, 1891	5,126.24
Inland transportation by railroad routes:	
1891	14,109.66
1892	332,496.53
Railway post-office car service:	
1891	1,116.54
1892	33,024.57
Compensation of postmasters:	
1891	11,579.33
1892	470,116.39
Total deficiencies for 1891 and 1892	867,970.12

52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { EX. DOC. No. 127.

CLAIMS ALLOWED BY THE TREASURY DEPARTMENT.

LETTER

FROM

THE SECRETARY OF THE TREASURY,

TRANSMITTING

A list of claims allowed by the accounting officers of the Treasury during the fiscal year ending June 30, 1892.

DECEMBER 15, 1892.—Referred to the Committee on Appropriations and ordered to be printed.

TREASURY DEPARTMENT,
December 13, 1892.

SIR: I have the honor to transmit herewith, for the information of Congress, lists of claims allowed by the accounting officers of the Treasury during the fiscal year ended June 30, 1892, and paid from the indefinite appropriations provided by the act of March 3, 1891 (26 Stat., pp. 984, 985), said claims being reported in accordance with provisions of section 2, act of July 7, 1884 (23 Stat., p. 254), and paid from the appropriations following:

Pay of two and three year volunteers	$775,851.67
Bounty to volunteers, their widows and legal heirs	330,243.87
Bounty under act of July 28, 1866	50,786.40
Commutation of rations to prisoners of war in rebel States and to soldiers on furlough	26,150.25

Respectfully yours,

CHARLES FOSTER,
Secretary.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

Claims allowed by the Second Auditor and Second Comptroller from July 1, 1891, to June 30, 1892, and paid from appropriations made by the act of March 3, 1891, (26 Stat., pp. 984, 985).

[Reported in accordance with the provisions of section 2, act of July 7, 1884, 23 Stat., 254.]

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT.				
146463	Andrews, Hugh	$67.17			$67.17
155974	Abbott (alias Rice), Robert H	28.60	$75.00		103.60
146999	Amsbry, Charles H	246.05			246.05
146141	Abbey, Aaron L	34.81			34.81
144537	Adams, Robert F		66.63		66.63
145783	Allen, Daniel R	291.53			291.53
156871	Alderson, James W	327.35			327.35
148168	Averill, David R	40.00			40.00
143303	Ashbaugh, William W	90.71			90.71
144025	Alexander, James S	25.88	100.00		125.88
143307	Anderson, Vincent	6.30	85.00		91.30
156304	Albaugh, Daniel W	24.89			24.89
156026	Albaugh, John	3.41			3.41
151886	Affleck, William J. (alias Wm. Jeffries)	567.11	100.00		667.11
134613	Apgar, Melville B	5.96	100.00		105.96
147215	Akins, William B	20.67			20.67
147792	Allaire, Frank		100.00		100.00
146146	Ayers, Amos T	346.21			346.21
142507	Andrea, Max H	82.86			82.86
148356	Abbott, Joseph B	309.28			309.28
147754	Adams, Parker S	331.37			331.37
146746	Avery, Earl W	195.35			195.35
148311	Arnold, Henry L	58.65			58.65
147797	Absher, William M		75.00	$100.00	175.00
148327	Allison, John	59.81			59.81
147657	Atkinson, John M	158.76			158.76
148326	Andrews, Theodore H	189.28			189.28
148482	Anderson (or Anders), Thomas	31.80	100.00		131.80
148483	——do	10.00			10.00
148348	Anno, John		33.34		33.34
148963	Alsup, Moses L	29.20			29.20
148254	Amsley, Aaron	37.81			37.81
163777	Austin, William R		100.00	100.00	200.00
141908	Askin, Washington C	153.40			153.40
148537	Achord, Samuel	3.54	100.00	50.00	153.54
148967	Adams, John S		25.00		25.00
156832	Armstrong, Andrew J	349.86			349.86
148542	Arnold, Hiram		100.00		100.00
148546	Aubrey, Nelson F		33.34		33.34
153113	Alcoke, Richard S	97.64			97.64
148554	Andrews, James T	83.95			83.95
148865	Arnold, Sanford P	11.61	20.00		31.62
150151	Ayars, Edward B	74.82			74.82
150197	Abbett (or Abbott), Alfred V. D	5.82			5.82
148863	Aymar, Adolphus	19.60			19.60
150474	Allen, Joseph O	111.94			111.94
149573	Acklin, John M		160.00		160.00
148831	Atwood, Charles	12.38			12.38
149651	Attebery, Albert M			50.00	50.00
149634	Anderson, William H	8.82			8.82
150480	Abbott, Lewis	17.66			17.66
149553	Allen, Edgar L	41.88			41.88
150831	Allhands, Francis M	32.96			32.96
150954	Alward, Henry J		100.00		100.00
148983	Aldrich, John K			50.00	50.00
150959	Angevine, Warren T	10.82			10.82
149146	Anderson, Jenkins F	209.17			209.17
151007	Adams, Arnold P	68.74			68.74
148417	Adams, Thomas F	636.00			636.00
148422	Atchley, George R	6.06	75.00	100.00	181.06
150961	Androus, Henry B	7.94			7.94
150186	Andel, Charles W	22.08			22.08
150427	Arney, John H	133.84			133.84
148424	Armstrong, James H	4.50			4.50
148429	Acuff, Noah A			50.00	50.00
151624	Atherton, Alonzo P		100.00		100.00
150974	Abernethy, James W	185.96	100.00		285.96

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
152994	Annis, George W	$220.34		$50.00	$270.34
167376	Anderson, Meredith		$200.00		200.00
152995	Arndt, Albert F. R	90.01			90.01
153120	Ackley, Andrew F	59.94	100.00		159.94
152536	Anderson, John. (*See* Madison, Marriott.)				
61032	Allen, Charles		100.00		100.00
153763	Andrews, James M	80.54			80.54
153764	Atwood, Thomas B	70.17			70.17
152603	Albertson, James	305.19			305.19
152604	Andy, Peter	32.62	100.00	100.00	232.62
154036	Armstrong, John M	2.70		50.00	52.70
151192	Alden, John	19.06	100.00		119.06
153695	Albach, Riley	111.65			111.65
151028	Arnhold, Charles	90.56			90.56
153052	Anderson, Lars	32.40			32.40
153175	Alexis, Sylvain	5.80	100.00	100.00	205.80
153176	——do	10.00			10.00
151885	Archer, Henry		8.00		8.00
153608	Angel, Hiram	90.50			90.50
152107	Alexander, Thomas F	921.56			921.56
153014	Abeel, Alfred	99.87			99.87
154478	Anderson, Robert D	44.97			44.97
146067	Auman, William	52.77			52.77
153102	Allen, David B	53.05			53.05
153094	Agens, Christopher	13.22	25.00		38.22
153819	Alexander, Samuel C	45.82		50.00	95.82
154582	Anderson, James M		200.00		200.00
155153	Andrew, John	104.16			104.16
152993	Andrus, Ashahel	3.80			3.80
155431	Allison, Carmi M	6.45			6.45
154336	Alexander, Thomas M	33.32			33.32
153047	Anderson, Henry S	17.91	135.00		152.91
154746	Allen, Andrew	22.10	100.00		122.10
154230	Applegate, William A	127.76			127.76
155346	Alexander, Joseph	158.69	300.00		458.69
155347	——do	10.00			10.00
155456	Acker, George D	76.37			76.37
155554	Armacost, Lewis	13.86			13.86
155832	Allen, Samuel	730.44			730.44
155312	Artibridge (or Arterbridge), Stephen		97.00	100.10	197.00
155313	——do	7.00	3.00		10.00
156128	Adams (alias O'Connell), Daniel		90.00		90.00
156129	——do		10.00		10.00
153909	Allen, George Q	43.92		50.00	93.92
156292	Athey, William V	170.27			170.27
156013	Atwell, William P	42.93			42.93
163058	Augustus, Independence	9.51			9.51
152321	——do	1.06			1.06
152062	Adams, Charles A	59.29			59.29
156593	Apgar, De Witt J	663.90			663.90
156860	Allen, Charles G	154.54			154.54
163510	Adams, Thomas H	84.00			84.01
163799	Adams, Gabriel S	261.65	75.00		336.65
163711	Andrus, Clark N	110.32			110.32
155987	Atkins, John	205.85	75.00	50.00	330.85
155260	Adelsperger, Thomas	109.37			109.37
155188	Androus, Samuel N	3.83			3.83
155739	Allspaugh, Jonathan	73.64	100.00	50.00	223.64
163845	Anderson, Charles P	44.27			44.27
163672	Abbott, Nathan A	66.13	75.00	50.00	191.13
156702	Allan, David	91.34			91.34
163675	Anderson, Edwin A	39.20			39.20
163815	Angle, Geo	378.24			378.24
164285	Andrews, Frank M		25.00	100.00	125.00
164162	Argersinger, Hiram	126.18			126.18
164618	Adams, David	31.91			31.91
164614	Adair, John D	16.97	100.00		116.97
156810	Austin, John M	66.06			66.06
164735	Anthony, Henry	41.94	33.33		75.27
163749	Adams, John	47.53	33.33		80.86
163820	Atkinson, Lewis A	82.12			82.12

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified) claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
164411	Atchley, Albert S	$139.64	$66.66		$206.30
165105	Allison, James	155.38			155.38
172230	Atwood, Olivet A	1.68	300.00		301.68
165161	Anderson, Wash		38.56		38.56
154492	Adams, James A	12.43			12.43
156618	Adams, Oscar M	152.61			152.61
156743	Austin, John H	100.94	100.00		200.94
156926	Adamson, Enoch R	290.01			290.01
163813	Arehart, John N	51.54			51.54
164591	Andrews, William W		110.00		110.00
164796	Albertson, James A	25.66			25.66
162464	Allison, George W	14.36			14.36
165425	Augustine, Joseph	3.54	135.00		138.54
156020	Ackley, James L	215.84		$50.00	265.84
147808	Armstrong, James	434.89			434.89
165465	Acton, Adam F	3.59	14.28		17.87
164674	Anderson, Nathan	67.93	75.00	50.00	192.93
165816	Adkins, Spurlock		100.00	50.00	150.00
165814	Adkins, Andrew J	16.04			16.04
171453	Adae, Carl A. G	59.00			59.00
165978	Ashmore, David C	89.64			89.64
163658	Atherton, Charles H	250.28			250.28
163865	Alexander, Joseph E	93.92	75.00		168.92
166383	Angeroth, Arnold S	19.92			19.92
166706	Adams, Wm. W		75.00		75.00
155263	Anthony, DeWitt C	51.90			51.90
165990	Allen, Nelson E	193.16			193.16
166723	Allen, Derrick P		115.00		115.00
166727	Allen, Orville C	44.90			44.90
163896	Adams, John	1.38	100.00		101.38
163897	——do	10.00			10.00
166125	Austin, Cornelius	30.35	50.00		80.35
166126	——do	7.50			7.50
166110	Adlin (or Adalin), John	24.43			24.43
166111	——do	5.00			5.00
167814	Alexander, Joseph	3.95			3.95
167815	——do	.44			.44
164646	Aldrich, Eugene S	187.69			187.69
165481	Anderson, James N	88.37	100.00		188.37
166677	Alexander, William L	23.26			23.26
167576	Arnold, William E	12.42			12.42
167895	Abel, James		75.00		75.00
165065	Atchisson, Charles	150.67			150.67
168499	Abernathy, James R	19.51			19.51
167588	Alvey, Basil	143.70			143.70
165076	Adams, George W	63.52			63.52
168089	Allen, Robert		300 00		300.00
167324	Athammer, William	65.40	133.33		198.73
168377	Amos, Peter	2.80	100.00		102.80
168378	——do	10.00			10.00
167028	Ashley. (*See* Redmond.)				
155434	Allison, Charles P	633.54			633.54
154846	Ames, Richard L	243.72			243.72
156198	Anthony, Albert	27.03			27.03
166410	Albright, George B	30.80			30.80
167191	Atwood, Andrew H		175.00		175.00
169340	Aikens, Tim	25.97			25.97
169341	——do	5.00			5.00
175087	Anderson, George	21.80			21.80
166155	Anderson, James W	60.06	25.00		85.06
170051	Alexander, William F	145.83	100.00		245.83
170108	Archer, Spencer		20.00		20.00
170109	——do		5.00		5.00
163632	Ames, Francis M	33.91			33.91
168351	Amos, Caleb J	55.28			55.28
168360	Allen, Charles	32.32			32.32
152131	Aiken, William H	44.24			44.24
169876	Austin, James E	224.63	95.00		319.63
166667	Allen, Thomas F	158.60			158.60
167370	Angleton, Marshall M		33.33		33.33

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
169223	Arnold, James L	$136.85			$136.85
170583	Armstrong, Thomas P	10.76			10.76
170584	——do	1.20			1.20
168332	Adams, Artemus	397.52			397.52
170396	Acker, Henry	208.45			208.45
156706	Anderwortt, George	107.65			107.65
170165	Austin, Robert	13.11			13.11
170166	——do	1.46			1.46
169599	Annis, Hiram	32.00			32.00
163140	Allen, Robert C		$7.53	$50.00	57.53
166719	Aldrich, Nathan C	127.56			127.56
164449	Ayers, John J	189.30			189.30
169167	Arnold, Thomas C	6.61			6.61
172012	Acuff, William		210.00		210.00
171144	Atwell, John S	4.76	100.00	100.00	204.76
171147	Arnold, Alexander C	88.01			88.01
171186	Ayers, Eben R	64.25			64.25
171542	Allen, Daniel B	171.57			171.57
166199	Ashley, Horace M	100.10			100.10
172178	Ames, Benjamin G	90.74			90.74
168125	Abbott, Enoch		200.00		200.00
168121	Austin, John	39.68			39.68
170640	Adams, William	32.10			32.10
172360	Anderson, Thomas	53.71			53.71
171518	Adair, Amos	5.13	100.00		105.13
171519	——do	10.00			10.00
171184	Ashley, Willard H	470.33	60.00		530.33
177076	Abbott, Allen O	265.40			265.40
170068	Asay, William	108.23			108.23
172267	Anderson, Daniel C	66.35			66.35
172019	Anderson, Benjamin P	151.08			151.08
167791	Anderson, Robert	124.88			124.88
176140	Appelt, August	18.20	100.00		118.20
172896	Allison, John G	933.38			933.38
171075	Andrews, Amos	351.05			351.05
172159	Allum, James P	59.83			59.83
169176	Allsworth, Edward	3.54			3.54
172123	Atwood, Edwin M	66.83			66.83
171929	Anderton, Francis W	73.82			73.82
172865	Andrews, George W	241.72			241.72
146246	Anthony, Stephen	56.26	66.67		122.93
173175	Allen, William S	39.43			39.43
167639	Allen, Charles W	129.31			129.31
172204	Allen, Charles A	335.08			335.08
166271	Allen, James H	2.82			2.82
171079	Anderson, John H		85.20		85.20
174227	Atkinson, Mat	8.05			8.05
174228	——do	.89			.89
174149	Arnold, Riley	4.94	100.00	100.00	204.94
174822	Allen, J. Madison	6.92			6.92
173788	Argo, Solomon D	48.10			48.10
174100	Allstrom, John V	72.39			72.39
172924	Albro, Jarvis E	20.32			20.32
174138	Atchinson, John F	17.60			17.60
174103	Ambrose, David	1.40	100.00		101.40
174907	Adams (alias Richardson), Peter	8.94			8.94
174197	Adams, Thomas	26.77			26.77
82588	Allen, William H	42.88	100.00		142.88
173680	Anderson, Anton E	94.37			94.37
174653	Allen, George W	179.26	100.00		279.26
174405	Armstrong, David H	18.64			18.64
174924	Abernathy, Robert	76.88	240.00		316.88
174925	——do	10.00			10.00
173200	Andrews, Charles O		100.00		100.00
174990	Adkins, Henry	25.00	75.00	50.00	150.00
175820	Ackerman, Chris		210.00		210.00
174207	Austin, Gustavus O	3.08	200.00		203.08
172089	Avery, William H		75.00		75.00
173165	Anderson, Joseph F	108.65			108.65
173448	Acton, Adam F	3.59	14.28		17.87
161070	Allen, Leslie P	26.00			26.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
174083	Allord, Dennis		$100.00		$100.00
170859	Allhands, Francis M	$57.58			57.58
174959	Argo, Archibald (or Archible)	7.06			7.06
174170	Atkinson, George W			$54.65	54.65
169699	Abbott, David S	28.60			28.60
171172	Armstrong, Wesley	55.38			55.38
153666	Adams, David	103.10			103.10
146729	Barbour, Benjamin S	149.44			149.44
146461	Barringer, Charles	70.06			70.06
145264	Button, George W	32.77			32.77
142503	Bachus, Lucius A	34.36			34.36
142504	Burk, Gains L	7.64		50.00	57.64
146502	Bradford, Byron	112.05			112.05
147005	Brewster, Jacob K	81.16			81.16
147321	Brennan, James	103.23			103.23
152555	Bassert, John (or Johannes Bossert)		100.00		100.00
134539	Barker, John D	57.13			57.13
147201	Brown, George H	192.73			192.73
146719	Brown, John J	17.71			17.71
147011	Buzzell, Ruel P	24.60		50.00	74.60
145062	Berry, Joseph B	47.17			47.17
147195	Bowen, Edwin A	32.86			32.86
142501	Bryan, John Q. A	14.78			14.78
155663	Burns, John. (*See* Jeremiah Sullivan.)				
145781	Buergin (or Burger), John	30.40			30.40
146093	Blackburn, Norval	53.12			53.12
147285	Brooks, Armstead	44.50			44.50
147286	——do	7.50			7.50
149922	Benefiel, Robert	13.02			13.02
146731	Blue, Batt	9.10	25.00	25.00	59.10
150404	Beach, William	42.59			42.59
135204	Bertram, Burel		210.00		210.00
155980	Bott, George M		200.00		200.00
156839	Burgess, Warren J	67.35			67.35
149880	Babb, William R	7.92			7.92
152660	Brown, James E		35.00		35.00
158363	Belnap, Nuel M	13.00			13.00
150794	Bruce, John M	310.19			310.19
147634	Bright, William	227.30			227.30
147671	Bowden, Colonel	52.88	100.00		152.88
147672	——do	10.00			10.00
155055	Bryant, William C	5.48			5.48
147334	Bradley, Thomas J	289.25			289.25
147332	Brooks, Alden F	661.67			661.67
146145	Borden, Baker	224.08			224.08
146887	Barricklow, John S		100.00		100.00
155255	Benison, Joseph	146.70			146.70
146270	Brill, John F	189.54			189.54
147220	Blandin, George W	60.62			60.62
145066	Byram, William H	1,181.61			1,181.61
147223	Brown, James L	41.09			41.09
147337	Blaire, George E	80.02			80.82
147340	Brown, Joshua K	6.66			6.66
148245	Brophy, John C	43.37			43.37
147028	Baumann, Frederick	1,056.96			1,056.96
146098	Boley, Walter E	140.32			140.32
148363	Barager, Charles F	154.03			154.03
148433	Brendel, Emil	139.07			139.07
148436	Bute, Cyrus	57.61			57.61
147346	Blodgett, Asiel Z	87.80			87.80
147348	Barnes, George F	52.92			52.92
148248	Bailey, James M	12.93			12.93
148553	Black, Francis	26.98	135.00		161.98
147226	Brown, Charles E	64.64			64.64
147713	Brannan, William M	18.66			18.66
148374	Beale, David F	147.60			147.60
155259	Beachly, Nathaniel J	164.30			164.30
147729	Bogia, Benjamin D	105.60			105.60
148266	Bewley, Seth		100.00	100.00	200.00
148300	Birmingham, Matthew	12.38			12.38
148516	Brown, Achilles M	262.48			262.48

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
147770	Bowman, Isaac L	$194.90			$194.90
148249	Bandel, Asabel	610.82			610.82
147788	Brayton, Coleman	39.17			39.17
149038	Bush, George N	340.00	$100.00		440.00
147667	Boreing (or Boring), Vincent	776.12			776.12
147668	Burrell, Willis	146.71	15.00		161.71
148253	Brown, Samuel H	32.01			32.01
148264	Betscher, John		165.00		165.00
148339	Brusher, Justus		100.00		100.00
148395	Bennett, Rufus M	35.85			35.85
148962	Burnett, Stephen J	7.92			7.92
147764	Burton, William R	54.88	40.00		94.88
148302	Blanchard, Alonzo	12.38			12.38
148320	Brown, John W	88.14			88.14
148512	Bremmer, William	206.96			206.96
148548	Bayes (or Bayse), John K	63.33			63.33
148887	Buckbee, Thomas	74.62			74.62
149013	Baggs, Wesley		89.23		89.23
149014	Beasley, Elias	51.86	300.00		351.86
149117	Bishop, William		200.00		200.00
149598	Balch, Perley S			$50.00	50.00
148511	Breuninger, William	37.94	25.00		62.94
148331	Buckingham, John	138.09			138.09
149599	Biggs, Francis G		200.00		200.00
149041	Ballinger, John L	60.27			60.27
149051	Briggs, William W	9.70			9.70
155899	Brundage, Samuel	61.19	55.00		116.19
155729	Barber, William	41.20	66.66		107.86
149032	Bates, Thomas		100.00		100.00
149794	Bibb, Robert	11.97	50.00		61.97
149795	——do	7.50			7.50
147747	Black, John H		100.00		100.00
148848	Burns, Charles E	12.83			12.83
149112	Beard, Reuben		100.00		100.00
149632	Brayton, Whipple M	695.68			695.68
149799	Brown, Joseph	25.40		50.00	75.40
149800	——do	7.50			7.50
150193	Bratcher, Berry	55.45			55.45
148860	Bailey, George T	11.90			11.90
148452	Beeman, John A	140.44			140.44
149096	Bryant, Frederick S	14.06			14.06
148544	Barry, William	44.80	100.00		144.80
148901	Baze, Joseph L	60.08			60.08
149099	Bogue, Edwin H	26.00			26.00
148972	Brown, Uriah M	134.10			134.10
149064	Barnes, J. G. (or Grandison G.)	14.80			14.80
148448	Bunker, John	508.60			508.60
148461	Bartlett, Ransom F	25.73			25.73
149829	Bedford, Henry	1.04	14.29		15.33
149830	——do	1.70			1.70
12831	Burleson, Adron	50.76			50.76
148399	Broadstreet, Sidney C			36.13	36.13
148527	Boes, John	65.73			65.73
149613	Bundy, William	72.86			72.86
149645	Beal, Lucius W	67.95			67.95
149819	Binkley, Jacob	51 93	300.00		351.93
149820	——do	10.00			10.00
150355	Baker, Charles E	17.85			17.85
150360	Barnes, Charles H	13.67			13.67
150364	Ball, John A	107.18			107.18
150391	Bilbie, Henry G	256.13			256.13
134283	Brearley, Samuel L	33.00			33.00
147809	Bush, Amandus L	129.20			129.20
149609	Bastian, Huber		100.00		100.00
149610	Ball, Lyman	86.54			86.54
146721	Barnes, Thomas H	26.38			26.38
149174	Baptis, Richard	45.50	100.00		145.50
149627	Bailey, Orra B			50.00	50.00
148836	Birmingham Michael	12.38			12.38
148321	Beswick, James C	124.29			124.29
149062	Brattin, Samuel E	162.07			162.07

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
149571	Bradley, William W	$40.81			$40.81
149572	Bradshaw, William G	41.96	$25.00		66.96
149767	Barrel, Charles L	63.07			63.07
150165	Baker, Barton R	164.96			164.96
147829	Barth, Henry	32.84	25.00		57.84
148467	Bowes, David	5.46			5.46
149122	Brietz, Henry C	41.50	100.00		141.50
149131	Burk, James H	5.70			5.70
150172	Boyer, William H		100.00		100.00
150397	Brush, George W	38.85			38.85
150403	Brant, Isaac		100.00		100.00
150473	Baldwin, Stephen H		100.00		100.00
150478	Burlingham, George A	20.90			20.90
150153	Boling (or Bowling), Absolom	7.24			7.24
149585	Barrett, Norman A	372.45			372.45
148582	Bomgardner, David	8.85			8.85
149583	Borden, Dwight C	15.60			15.60
150380	Brown, John C	764.00			764.00
148844	Bates, George	22.05			22.05
149072	Bunker, Eli	16.13			16.13
147817	Blackburn, John	8.40	100.00		108.40
150162	Bramley (Bromley or Brumley), James J	131.79			131.79
148330	Barrett, Thomas H	26.43		$100.00	126.43
149576	Budd, James		100.00		100.00
149661	Benner, Henry S	18.40			18.40
148017	Bowler, John	10.00			10.00
148020	Buckalew, William	13.65			13.65
148022	Bodine, Robert L	94.19			94.19
149140	Bent, Henry	100.61			100.61
149788	Boggs, John T		100.00		100.00
151091	Baker, Silas		90.00		90.00
151092	——do		10.00		10.00
148025	Beal, Seneca W	186.03			186.03
150506	Brown, Horace	22.91			22.91
151557	Buskirk, Henry G	28.16			28.16
150792	Brown, William (*see* William Henry)				
148589	Bolton, Charles S	11.25			11.25
150385	Baldwin, George M		100.00	50.00	150.00
150858	Beamenderfer, John H	79.86			79.86
149667	Bacon, Isaac B	6.07			6.07
151084	Buckner, Charles	27.75	100.00	100.00	227.76
151085	——do	10.00			10.00
151616	Boody, Henry F		100.00		100.00
150372	Brown, Joseph B	144.63			144.63
149665	Blanck, William	24.17			24.17
151159	Beers, Edmund O	225.38			225.38
151516	Brewer, James A		100.00		100.00
151596	Beyer, Hillary	399.45			399.45
151612	Briggs, Alonzo S		100.00		100.00
151936	Burrell, Henry	131.12	300.00		431.12
151937	——do	10.00			10.00
150865	Barbee, Edward	322.68			322.68
150965	Bryant, James A		185.00		185.00
150966	Bush, Alexander	177.64		50.00	227.64
152009	Burget, Lawrence	75.50			75.50
156830	Bigelow, James K	56.52			56.52
150992	Borman, Fritz			100.00	100.00
151157	Bowen, Oscar O	76.82			76.82
151202	Bane, Thomas	650.46			650.46
151522	Bowman, Thomas J	40.65			40.65
151884	Burns, Andrew M	97.20			97.20
152076	Bissell, Henry C	36.43			36.43
151993	Burns, William V	6.63			6.63
167294	Baird, John V	169.90			169.90
148965	Barger, Lewis H		59.26		59.26
152084	Browne, Cyrus M	61.11			61.11
152082	Baldwin, Samuel B	9.21			9.21
151142	Bayer, Frederick A	386.39			386.39
150188	Blackburn, William H. H	38.56	16.67		55.23
151018	Brown, George W	93.62			93.62
151585	Baker, DeWitt C	19.72			19.72

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	WAR DEPARTMENT—Continued.				
152081	Bates, Ansel	$305.41			$305.41
152089	Barkley, Joseph T	56.93			56.93
150847	Bartlett, Charles H	109.26			109.26
151176	Boedicker, Emil	83.40			83.40
152127	Brukner (or Brickner), Peter	61.80			61.80
152591	Bentley, Franklin E	6.38			6.38
151182	Belding. George M	58.21			58.21
151223	Brown, Charles K	99.50			99.50
151224	Bunker, David	950.42			950.42
151890	Bumpus, James 1	112.70			112.70
151891	Bowlus, John W	58.24			58.24
152100	Burton, Lorenzo D			$100.00	100.00
152157	Butler, Samuel C	163.08	$100.00		263.08
152158	——do	10.00			10.00
152479	Bennett, William N	6.06	100.00	100.00	206.06
152511	Barton, Davis (*see* Davis B. Wood)				
153002	Beauregard, Oliver	144.52	33.33		177.85
148244	Brown, John M	17.34	66.66		84.00
150948	Bullock. Garland R	299.46			299.46
152537	Brown, Dudley	3.56			3.56
153161	Barger, Isaac		290.00		290.00
153162	——do		10.00		10.00
150189	Billings, James J	42.81			42.81
151190	Bartlett, Joseph J	43.88			43.88
152538	Bass, John T		100.00		100.00
153037	Bowen, William		100.00		100.00
153119	Browne, George		100.00		100.00
155735	Bryan, Daniel	19.06	100.00		119.06
167779	Brady, James D	19.60			19.60
167221	Bletherwick, Edwin G	333.67			333.67
151143	Beach, William H	120.44			120.44
152542	Brazee, William	4.05			4.05
152559	Burt, John S		100.00		100.00
157839	Bell, Francis M	23.23			23.23
152493	Barney, Simon Z	91.43			91.43
152530	Babcock, Charles S	311.04			311.04
153177	Bell, William	47.82			47.82
153178	——do	7.50			7.50
531299	Beverly, Lewis E			50.00	50.00
152582	Buckley, Patrick	48.81			48.81
152104	Barney, Hiram M	387.23			387.23
151882	Bostwick, Nathan	50.61			50.61
152115	Bousson, Asbury (*see* Asberry Law)				
153086	Bailey, Philip	38.13			38.13
153762	Black, James M	94.83			94.83
150949	Billings, Leonard L	70.15	85.00		155.15
152145	Black, Edward		100.00		100.00
152504	Bowler, James M	134.27			134.27
152606	Bowers, John	52.43	100.00		152.43
153019	Bentley, James W	429.39	100.00		529.39
153439	Bigelow, Alonzo	44.69			44.69
154055	Byrne, Peter	359.16			359.16
151629	Burbank, William H	9.95			9.95
151546	Bump, Leonard		210.00		210.00
151990	Bigley, Alvey M		87.00		87.00
152513	Brown, Lemuel S		200.00		200.00
152583	Ball, Edward	13.47			13.47
152101	Barber, Edward H	81.19			81.19
152520	Batchelder. Charles M	70.93			70.93
153140	Brown, Robert	146.10			146.10
153139	Burghardt, Francis	11.52			11.52
152585	Ballard, John L	66.00			66.00
153769	Bulmer, David	5.51			5.51
153015	Bidwell, Benjamin S	72.82	75.00	50.00	197.82
153095	Birchard, Josiah A	54.20			54.20
153144	Bradshaw, William H	86.85			86.85
153862	Bogy, Benjamin	95.18	100.00		195.18
153863	——do	10.00			10.00
167886	Brown, Seymour		60.00		60.00
153148	Buckman, Henry C	716.12			716.12
154473	Brady, James O	102.45			102.45

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	WAR DEPARTMENT—Continued.				
151997	Bowsman, Benjamin F	$61.22			$61.22
153761	Brown, George M	137.02			137.02
153780	Burgess, Albert W	65.90			65.90
165413	Bradshaw, Robert C	181.20			181.20
152508	Branham (or Branum), George W		$100.00	$100.00	200.00
153798	Burroughs, John T			50.00	50.00
157844	Bell, Charles P	59.32			59.32
152085	Burlingame, Seymour	6.00	310.00		316.00
152587	Blackburn, William D	96.21			96.21
153058	Benoit, Ernest T	25.00			25.00
153013	Baker, Murry S		200.00		200.00
153786	Bacon, James H	113.50	15.00		128.50
153790	Bridges, Nelson	8.71			8.71
153813	Brown, Thomas	78.63			78.63
154637	Broadway, Lee	15.24	50.00		65.24
154638	——do	7.50			7.50
153782	Baldwin, Wallace E	43.02			43.02
154208	Burgh, Henry B	15.81			15.81
154594	Benjamin, Evan	68.90	100.00		168.90
169852	Boden, William		100.00		100.00
156749	Baugness, Robert J	55.07			55.07
153812	Barber, Edwin L	170.65			170.65
154603	Bradley, William S	8.06			8.06
153108	Beach, Thomas B	117.64			117.64
153739	Beers, David	6.97			6.97
154243	Buchanan, George W		100.00	100.00	200.00
154551	Beach, Rodney W	5.29			5.29
154805	Bronson, Albert	40.24			40.24
169211	Burch, John F	44.48	25.00		69.48
152613	Brooks, Joseph	88.42			88.42
152979	Burke, George S		40.00		40.00
154837	Ballou, Newton H	103.64			103.64
155010	Bradford, Almon	149.18			149.18
153066	Bausback, Charles L	24.82	435.00		459.82
153884	Bramwell, William A	104.38			104.38
154199	Brant, Uriah	132.04			132.04
154654	Betat (or Betta), Joe	25.98			25.98
154655	——do	5.00			5.00
155019	Brachmann, William E		100.00		100.00
153065	Baker, Wiley P	1.24	100.00		101.24
154578	Bolles, Julius D	124.49			124.49
154624	Bagg, John	58.00			58.00
154839	Baker, Joel C	46.52			46.52
153465	Banta, Samuel J	110.37			110.37
154801	Bohner, William	2.83			2.83
158603	Borrell, Joseph		100.00	50.00	150.00
152971	Bentley, Levi K	53.54	75.00		128.54
154043	Boyd, William H., jr	3.54	100.00		103.54
154222	Brightman, Eugene K	32.00			32.00
154225	Besse, George		100.00	100.00	200.00
154577	Berry, John V	90.80			90.80
154714	Buchanan, Horace	33.77			33.77
154732	Brooks, Lewis S	6.65			6.65
154847	Burke, Asa		335.00		335.00
155026	Babcock, Abram		100.00		100.00
155436	Bidenharn, William T	49.99			49.99
155438	Buck, Henry	126.18			126.18
155672	Beckett, Solomon		100.00	100.00	200.00
154737	Brown, Granville W	20.49			20.49
153891	Bohn, Ahiman V		100.00		100.00
154333	Barber, Lander	131.61			131.61
154627	Bockee, Jacob S	75.05			75.05
155236	Brewer, Henry A		25.00		25.00
162891	Bruer (or Brewer), Henry	7.14			7.14
152612	Burkett, George E		200.00		200.00
154315	Boggs, Hugh	88.07			88.07
154343	Bowen, John	29.98	75.00	50.00	154.98
154740	Biggs, Moses A	9.10	100.00		109.10
155338	Boykin, Camden (or Campden Boyken)	55.05	25.00		80.05
155339	——do	7.50			7.50
155685	Brent, William S		33.34		33.34

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	WAR DEPARTMENT—Continued.				
154485	Bywater, George W	$54.35			$54.35
154494	Baldock, George W		$100.00		100.00
154730	Ballinger, Webster	1.46	100.00		101.46
155446	Beery, William	136.87			136.87
155170	Baird, Azariah M	153.14			153.14
152501	Barker, Elihu G	227.26		$50.00	277.26
153882	Bostwick, Austin B	546.23			546.23
154226	Bartleson, Robert B	43.13			43.13
154620	Biggs, Charles J	30.42		50.00	80.42
154622	Beecher, Harris H	61.04			61.04
154748	Brown, Armsted C	4.47			4.47
155350	Brown, Perry J	1.05	100.00		101.05
156111	——do	10.00			10.00
155690	Bush, L. E. P		100.00		100.00
154504	Browning, Mountjoy		100.00	100.00	200.00
153734	Branan (or Brannum), Alexander	21.42	56.67		78.09
154054	Bayne, Nathaniel	74.79			74.79
154830	Bing, James P	5.28			5.28
155241	Bissell, Hiram	56.20	25.00		81.20
155242	Bancroft, Peter S	83.57			83.57
155556	Boettger, Conrad	333.16			333.16
158759	Bennett, Augustus G	139.69			139.69
155005	Buck, William C	39.87			39.87
21950	Boozer, William K			100.00	100.00
151129	Bedell, John V	17.49			17.49
154625	Brown, Charles L	554.53			554.53
155014	Burch, William. (*See* A. M. Vaughan.)				
169911	Butler, John B	336.29			336.29
155642	Bird, Samuel W	85.39			85.39
155695	Bousquet, John J	5.06			5.06
155697	Butcher, Samuel M	142.10	200.00		342.10
155771	Bingaman, Robert J	28.97	160.00		188.97
155968	Bacon, William G	311.34	125.00		436.34
155995	Barnes, Thomas N	107.04			107.04
156130	Beach, Hugh P	172.42		50.00	222.42
156273	Burch, Cassius C		23 70	50.00	73.70
156279	Burge, James R		25.00		25.00
155006	Brown, Oliver P	26.04			26.04
155567	Bennett (or Benitt), William	137.45	75.00		212.45
156003	Burch, Sylvester R	31.28			31.28
159098	Bradley, Grandison G	3.46			3.46
156141	Boyd, James	1.86	200.00		201.86
156142	——do	10.00			10.00
156757	Baker, Elijah	42.60	100.00		142.60
156758	——do	10.00			10.00
155785	Bemis, Melvin H	135.56	110.00		245.56
156124	Baptiste, William John	16.70			16.70
156125	——do	1.85			1.85
156293	Baker, James H	225.15			225.15
156792	Brand, Nelson S	120.07			120.07
161635	Baker, John T	3.59			3.59
154499	Boles, Johnson		100.00	100.00	200.00
155887	Berrian, James T	19.60			19.60
154269	Blake, Philander	256.94		50.00	306.94
155779	Brooks, George D	55.27			55.27
156015	Beals, Job S	205.34			205.34
156153	Barrett, John E	18.84			18.84
17864	Bradley, William H	52.33			52.33
148309	Basham, Luther D	3.22			3.22
155425	Brawn, Alexander H	864.45			864.45
163067	Bell, William	9.85			9.85
152324	——do	1.09			1.09
155581	Beanstick, Samuel	3.87		100.00	103.87
165987	Boughton, Corydon	390.27			390.27
162304	Butrick, Philemon	49.99			49.99
134515	Budd, Benjamin C	63.66			63.66
151991	Brown, Squire	55.42			55.42
154868	Battenberg, Charles C	163.73			163.73
155444	Brouse, Reason F	33.97			33.97
163730	Bramhall, John	34.76	33.33		68.09
155658	Bradley Richard	25.38			25.38

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	WAR DEPARTMENT—Continued.				
155676	Belt, Logan	$38.37			$37.37
156777	Boggs, Tillman		$90.00		90.00
156778	....do		10.00		10.00
156851	Bleakney, Lewis	109.36			109.36
155858	Blalock, James W		75.00		75.00
155981	Brooks, Thomas	72.60			72.60
156602	Bartlett, Joseph	530.64			530.64
156612	Bradley, Joseph H	105.72			105.72
156859	Ballinger, Richard H	3.77			3.77
161385	Bingham, Frank	69.09			69.09
163500	Buxton, George W		100.00		100.00
163766	Borger, George H	20.14			20.14
152051	Bugbee, George E	54.97	25.00		79.97
153061	Brown, Robert A	150.92	75.00		225.92
156726	Brockett, Benjamin F	117.74			117.74
163627	Buck, George, jr	23.07			23.07
163633	Bangs, Gilbert V		50.00		50.00
164171½	Bullock, George		90.00		90.00
164172½	....do		10.00		10.00
164173½	Brown, William	131.54		$50.00	181.54
159189	Brown, Patrick J	40.64			40.64
155863	Boring or Boren, Absalom	34.74			34.74
155250	Brooke, Jacob P	26.70			26.70
163728	Bonnett, Samuel W	17.80	33.33		51.13
164255	Bell, Thomas C	88.67			88.67
164160	Butler, Francis D	115.76			115.76
171512	Brown, Alfred	6.38			6.38
163860	Bell, Charles J	10.22	100.00		110.22
163814	Beers, Adam M	26.94			26.94
156806	Bryant, William C	24.53			24.53
164155	Burns, Barney	208.26			208.26
166079	Barber, Moses	94.74			94.74
172259	Burnham, Samuel M		100.00		100.00
165092	Bockins, Henry J	34.62			34.62
155447	Ball, James H	30.68			30.68
163854	Branick, Elias	66.83	100.00	100.00	266.83
163674	Boyd, Geo. Y	11.33			11.33
156007	Beeman, Joseph M		100.00		100.00
155746	Barringer, Martin	811.09			811.09
164178	Bourne, Roswell W	207.30			207.30
164613	Barrett, John A	88.20	100.00		188.20
164755	Batchelder, John K	62.17			62.17
156922	Brown, Alfred	146.86			146.86
156738	Barber, Henry D	185.58			185.58
164691	Braden, William D	81.13	100.00		181.13
164697	Brown, Joshua K	65.86			65.86
163735	Bettes, William H	160.07			160.07
156818	Brown, Jackson	15.76	100.00		115.76
164194	Bryarly, John W., alias J. B. Williams		25.00		25.00
156733	Baker, John S	24.26	100.00		124.26
164655	Beatty, John	13.50			13.50
164581	Blankenship, John	3.12	33.34		36.46
163784	Beckhart, Jacob	43.04		50.00	93.04
164744	Barcus, Henry		100.00		100.00
164617	Brown, Jasper N	57.90			57.90
165063	Bassignano, Victor	77.63	75.00		152.63
165015	Bennett, Franklin H	11.49			11.49
164673	Blacker, Corban J	.64	33.33		33.97
163789	Booz, Albert	106.15			106.15
172032	Biles, Edwin R	27.19			27.19
128893	Brackman (or Harris), Samuel	19.52			19.52
165131	....do	5.00			5.00
157135	Bryant, Owen	11.86			11.86
157135½	....do	1.32			1.32
163892	Banks, Oscar	36.78	93.34	93.34	223.46
163893	....do	10.00			10.00
171566	Burns, Michael W	164.33			164.33
164183½	Barnes, Robert	.05	33.33		33.38
164184½	....do	5.00			5.00
163876	Bull, John	5.18	100.00		105.18
163877	....do	10.00			10.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
163879	Bryan, York	$3.94	$100.00		$103.94
163880	——do	10.00			10.00
131587	Brent, Lennon		90.00		90.00
163900	——do		10.00		10.00
165153	Baker, Thomas	12.55			12.55
165154	——do	1.39			1.39
165149	Blake, Peter	3.94	100.00		103.94
165150	——do	10.00			10.00
151518	Bristow, Miles	73.93			73.93
154483	Burns, Proctor M	122.57			122.57
156719	Brockett, Benajah	98.57			98.57
156829	Brown, Rufus L	5.10	250.00		255.10
156932	Baker, Samuel W	69.23			69.23
163657	Burbank, Walter H	244.98			244.98
163685	Blatherwick, Charles W	44.46			44.46
163742	Blohn, John	46.96			46.96
164753	Bowker, Seth D	38.65			38.65
164759	Bunts, William C	90.18			90.18
164791	Bushong, William	2.66	75.00		77.66
165020	Belcher, James F		19.76		19.76
165070	Bennett, Thomas	10.37	5.00		15.37
165074	Bale, Edward	390.23			390.23
165099	Bechtel, Albert	139.36			139.36
165119	Beard, John P	29.31			29.31
165971	Bowe, James	28.86			28.86
172026	Bonawitz, Jacob A	14.22			14.22
171565	Brown, E. Parmly	673.55			673.55
164120	Beebe James E	14.72			14.72
162541	Borchert, Charles	11.05			11.05
162917	Bell, Aaron J		68.58		68.58
162118	Booker, Austin	4.28			4.28
171212	——do	.48			.48
162117	Bowen, Marcus	3.67			3.67
171211	——do	.41			.41
165081	Berkley, Granville, jr	51.20			51.20
165172	Breneman, Christopher	666.96			666.96
155256	Blood, John	66.23			66.23
165104	Barclay, John W	183.07			183.07
165976	Barberich, Anthony J	244.57			244.57
164265	Baldwin, John W	13.66	25.00		38.66
165204	Bowen, George	123.86		$50.00	173.86
164440	Brown, James		63.17		63.17
165898	Boyle, Robert	24.89			24.89
165200	Breedin, Calvin	82.50			82.50
164430	Bryson, William V	8.63			8.63
165830	Bell, William P	48.29	250.00		298.29
165196	Butcher, William	39.86	75.00	50.00	164.86
164196	Bailey, Amos V	17.98			17.98
164439	Buchanan, Thomas J	28.10			28.10
166422	Brown, Allen G. P	37.00			37.00
165029	Beaver, Jerome C	51.85	240.00		291.85
165032	Bright, William F	326.70			326.70
165426	Bredett, Eliphalet	10.66			10.66
165434	Beckmann, Henry	42.34			42.34
165862	Burgoyne, Thomas J			33.33	33.33
165188	Burbank, William	82.45			82.45
165429	Burger, Frantz	42.34			42.34
165083	Bickford, Thomas M		100.00		100.00
165878	Bennett, George J		100.00		100.00
164809	Baird, Harlan	537.58			537.58
164770	Browning, John W	2.29			2.29
164624	Brown, Daniel G	340.75			340.75
173735	Bingaman, William P	3.53	150.00		153.53
165842	Bryant, Levi	6.27	33.34		39.61
165127	Brockway, F. P	395.79			395.79
165084	Boren, John A	42.28	150.00		192.28
156925	Boulden, Oliver P	75.52			75.52
164728	Brierly, Thomas A	55.16			55.16
164639	Buck, Nathaniel Y	34.31			34.31
166385	Brown, Henry H	4.03	100.00		104.03
166381	Brown, William	151.44			151.44

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
156597	Boody, Robert M	$4.00			$4.00
164727	Beyland. E. A. Hermann	4.25			4.25
165449	Belts, Charles G			$9.64	9.64
166382	Buck, Jerome A	8.23			8.23
163834	Berry, James	9.60		100.00	109.60
165913	Bell, Alexander R	277.01			277.01
165907	Bird, James W	100.24			100.24
154589	Butterfield, Isaac C	92.65			92.65
166658	Bowman, John P	69.75			69.75
165047	Barney, Lucius M	7.00			7.00
163669	Bradley, James		$24.77		24.77
166708	Badgero, Alfred	40.55	15.00		55.55
172284	Baldwin, Seth W	3.50	100.00		103.50
166709	Beebe, Martin		135.00		135.00
164638	Barnhart, John C	154.94			154.94
165920	Baldwin, John L	45.08			45.08
164287	Botkin, Abraham H	690.56			690.56
166508	Baxter, Henry	23.52			23.52
165057	Brown, George E	361.37	100.00	50.00	511.37
166482	Berryman, James H	1.73	100.00		101.73
166483	——do	10.00			10.00
166478	Buck, William		84.50	100.00	184.50
166479	——do	10.00			10.00
167284	Bordley, Joseph		90.00		90.00
167285	——do		10.00		10.00
166462	Butler, George	11.56	100.00	100.00	211.56
166463	——do	10.00			10.00
166450	Bentley, Francis A		100.00		100.00
166728	Bailey, George H		100.00	100.00	200.00
166981	Briggs, Castor		200.00		200.00
167171	Bryant, James H	79.26			79.26
167293	Benedict, John M	313.68			313.68
166391	Brother, Edward F		100.00		100.00
164447	Bostick, Edmond D	218.16			218.16
166249	Brown, Daniel S	91.88			91.88
166664	Boomer, Albert	81.01			81.01
167812	Brogden, Samuel		90.00		90.00
167813	——do		10.00		10.00
167894	Boalt, Frederick H	87.30			87.30
166434	Benson, Edward	96.52	140.00		236.52
167820	Brown, Aaron	6.02			6.02
167821	——do	.78			.78
166397	Betts, David	3.00	100.00		103.00
24237	Bennett, William H	14.06	100.00		114.06
166102	Biami (or Biann), Joseph	15.28			15.28
166103	——do	1.70			1.70
168131	Boyden, William	11.25			11.25
166989	Bingham, Ralph B		70.00		70.00
168093	Bickham, Pearson D		235.00		235.00
164185	Barney, Albert M	162.77			162.77
167776	Bliss, William R	10.56			10.56
163791	Barnett, Jesse L	416.44	35.00		451.44
156700	Bielby, Robert G	403.85		50.00	453.85
165926	Blackmer, Chas. W	255.34			255.34
164806	Bang, Lewis		100.00		100.00
166244	Bell, John H	60.28			60.28
167899	Brown, Thomas	166.14			166.14
166507	Bacon, George A	53.55			53.55
166243	Ball, Eustace H	101.51			101.51
165865	Butler, Martin V. B	307.96	100.00		407.96
173144	Bryant, Andrew	58.88			58.88
164742	Bohne, Herman A	187.82	66.66		254.48
167868	Branson, John		100.00		100.00
167019	Bacchus, Joseph			29.34	29.34
167020	——do			5.00	5.00
167582	Brooks, Bird P	19.34			19.34
166407	Burns, Peter	2.60	100.00		102.60
164434	Bowman, Joseph	310.52	100.00	100.00	510.52
166997	Bailey, Clarence S		100.00		100.00
167319	Byers, Henry S	87.77			87.77
167320	Butt, Samuel W	19.00			19.00

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	WAR DEPARTMENT—Continued.				
167874	Bell, Henry	$28.60			$28.60
163698	Bixby, Amos S	25.04			25.04
166688	Babcock, John H	35.97			35.97
168498	Brown, James R	59.66			59.66
152985	Beardsley, George W	12.13			12.13
167883	Burchell, Eldridge J		$240.00		240.00
168344	Booth, James H		100.00		100.00
167903	Berger, George M	18.95			18.95
153794	Baiar, John C	46.96			46.96
166678	Baird, Robert B	243.45		$50.00	293.45
168379	Beasley, Samuel		100.00		100.00
167877	Bascom, Calvin J			50.00	50.00
165999	Boucher, Theodore	102.55			102.55
167223	Barnhill, Rigdon S	22.52			22.52
152988	Brown, Guy A	97.24			97.24
168051	Bradford, William		145.00		145.00
168052	——do		10.00		10.00
168341	Best, Solon P	72.80			72.80
168139	Booth, John O		100.00		100.00
168504	Bonbright, Daniel	145.84			145.84
168511	Borard, Charles		300.00		300.00
167046	Blythe, Jacob	44.50	128.57		173.07
167047	——do	10.00			10.00
168106	Brown, George W	94.89			94.89
168155	Bump, Orin	56.00			56.00
167610	Baker, Daniel B	137.64			137.64
167198	Bowling, John M	21.20			21.20
167224	Baugh, John W	18.02			18.02
169372	Becker, John H	8.92			8.92
169337	Barnett George	47.67			47.67
169338	——do	7.50			7.50
169355	Braden, Frank	90.40	100.00	50.00	240.40
169356	——do	10.00			10.00
156696	Briles, Andrew J		100.00		100.00
169857	Brockaw, James			50.00	50.00
167398	Brooks, William	28.60	100.00		128.60
167399	Becker, Henry	65.66			66.66
169895	Brown, William W	77.15			77.15
168108	Brown, George H	305.78			305.78
167240	Bigelow, Eustace C	348.95			348.95
166164	Baker, David L	8.92			8.92
169891	Black, Chauncey	18.68	100.00		118.68
169147	Brady, Jasper P	59.82	85.00		144.82
167188	Baker, John B	37.36			37.36
168164	Birdsall, Daniel E	50.33			50.33
169146	Bradrick, Isaac A	19.98	100.00	50.00	169.98
167356	Butler, Roderick R	78.53			78.53
167355	Brown, John	67.17	75.00		142.17
166172	Benjamin, Henry		124.53		124.53
167346	Buckman, Jesse	34.13			34.13
167357	Bliss, Enos H	172.07			172.07
166400	Boyd, Hiram P		200.00		200.00
169898	Baker, Daniel M	141.95			141.95
166440	Brown, Granville	161.01			161.01
176032	Bowers, Joseph R	239.24			239.24
29351	Bailey, Bennett B	44.56			44.56
168524	Broadbent, George W		100.00		100.00
169594	Bowen, Adna H	129.21	100.00		229.21
168356	Blood, James M	22.81			22.81
170218	Baldwin, Chas. F	23.10			23.10
169392	Bradley, Frederick A	1.99	100.00		101.99
169871	Beman, John B	78.22			78.22
170101	Bullen, Phillip	25.36	100.00	100.00	225.36
170102	——do	10.00			10.00
168396	Brown, Gustave	18.24			18.24
168397	——do	5.00			5.00
168364	Boatwright, David		66.66		66.66
112992	Brown, Isaac	39.27			39.27
168797	Box, Thomas J	91.14			91.14
169597	Bell, John B	157.36			157.36
169229	Beardsley, Alexander E	349.27			349.27

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	WAR DEPARTMENT—Continued.				
168518	Bauer, Jacob	$7.95	$18.75		$26.70
170380	Brose, Julius B	13.94	100.00		113.94
170211	Beecher, Clarence Y	20.30			20.30
170571	Bantum, Thomas H		50.00		50.00
167367	Belser, James H	159.03			159.03
169606	Bolis, Moses (*alias* Mosher)		200.00		200.00
170381	Brinkerhoff, John I	199.65			199.65
167362	Bowman, James W	113.60			113.60
170426	Bedell, Edward	94.05			94.05
170418	Brown, Hiram M	18.43			18.43
169605	Buck, William L	17.38			17.38
167366	Barnes, John H		100.00		100.00
170578	Bentley, Samuel		82.90		82.90
170579	——do		7.50		7.50
170159	Bullock, Lafayette	12.55			12.55
170160	——do	1.39			1.39
170063	Bradley, Charles L	32.28			32.28
169236	Baird, John G	7.72	100.00		107.72
169235	Bradley, Felix	31.16	75.00	$50.00	156.16
169406	Bishop, Jonathan	22.96	100.00	100.00	222.96
167246	Bryant, Francis M	100.38			100.38
163701	Bailey, Chester	17.57			17.57
170594	Brooks, Lloyd		90.00		90.00
170595	——do		10.00		10.00
169216	Bell, George W. S	133.26			133.26
170624	Ball, James M	19.51			19.51
171110	Brown, Judd	8.37			8.37
171111	——do	.93			.93
170623	Benson, Ezzan H	22.23			29.23
168804	Barter, James M	117.91			117.91
169601	Berry, William L	562.45			562.45
171097	Bowers, Joseph	13.24			13.24
171098	——do	1.47			1.47
171095	Bright, Alfred (or Albert)	12.92			12.92
171096	——do	1.44			1.44
165580	Bowsman, Jacob	2.82			2.82
170602	Bell, William H	23.51	100.00		123.51
170626	Bell, Enoch W	.11	100 00		100.11
170587	Butler, Theophilus H		67.50		67.50
170588	——do		7.50		7.50
166446	Bigler, John		200.00		200.00
170419	Bradley, John E		100.00		100.00
163709	Belleville, Edwin	5.97			5.97
169878	Brown, John	51.65	15.00		66.65
169889	Babcock, Alphonso H	93.50			93.50
171578	Burns, Robert H	248.06			248.06
170406	Black, H. B. (*See* Henry B. Swart.)				
170248	Barton, Daniel W	35.29			35.29
170056	Bliss, Azro B			100.00	100.00
170867	Brown, John H	41.62			41.62
170632	Bones, James R	173.17			173.17
170870	Bickett, Francis	41.41			41.41
166185	Brown, Daniel H	48.73			48.73
169394	Burger, Jacob	120.32			120.32
170634	Blakesley, George W	111.80			111.80
169407	Butler, Young	2.00			2.00
169242	Buck, James	2.71	100.00		102.71
171190	Beach, Corydon	458.04			458.04
170863	Brush, Havily	4.92	340.00		344.92
171124	Brown, John, 2d	9.06			9.06
171125	——do	1.01			1.01
171142	Bulger, John	.86	100.00	100.00	200.86
171575	Bullock, Dyer D	219.04			219.04
170445	Barnes, Charles	342.09			342.09
176900	Brown, James M	14.37			14.37
161202	Bucey, Jesse	42.93			42.93
172177	Brown, Edwin E	19.94	100.00	100.00	219.94
170881	Bowlby, Sylvester	42.03			42.03
170884	Black (alias Geo. Davis), William	46.02			46.02
171958	Beer, Levi	128.94	160.00		288.94
171959	——do	10.00			10.00

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	WAR DEPARTMENT—Continued.				
170670	Brink, Vincent	$375.95			$375.95
171158	Bailey, Robert		$25.00		25.00
171574	Brooks, Shubert A	400.80			400.80
172294	Brown, Bailey B	13.00			13.00
175817	Blanden, William A		30.00		30.00
171455	Burroughs, Harmon P	113.60			113.60
172752	Bowen, Anthony L	67.05			67.05
172745	Booher, John	11.92			11.92
172861	Bartlett, Charles S	14.00			14.00
170683	Battey, Frederick A	133.34			133 34
172731	Bowman, Pulaski W	179.19	100.00	$50.00	329.19
167379	Bardsley, Naphtali		85.18	50.00	135.18
166064	Bougless, Thomas H		100.00		100.00
161770	Braley, William H	23.90			23.90
162710	Bair, William R	4.67			4.67
164950	Baker, Hiram	6.60			6.60
163639	Busiel, Harrison M	307.64			307.64
164407	Brooks, George E		20.23		20.23
165575	Brewster, James P	2.82			2.82
171472	Bliss, Lyman W	126.49			126.49
173698	Balmer, Daniel W	21.58			21.58
173772	Bonesteel, Ezra	14.81	60.00		74.81
172776	Bay, Hillery W	120.35			120.35
172324	Burnett, Thomas W	66.45			66.45
172323	Bryant, George L	138.73			138.73
164551	Beers, David A	21.66			21.66
160104	Barnicle, Ambrose J	22.17			22.17
169219	Brooks, James	23.82			23.82
165218	Brown, Wm. D	6.50			6.50
172269	Burger, Frederick W	166.71			166.71
171609	Bidwell, Charles H	88.10			88.10
165219	Brown, Samuel	6.15			6.15
163791	Blake, Alfred	8.94			8.94
173116	Brown, Oliver M	48.62			48.62
173651	Bremner, John	106.03			106.03
173779	Barnett, Samuel	19.87	40.00		59.87
174175	Brehme, Fred O	63.66			63.66
167645	Bird, William W	36.67			36.67
173119	Bassett, Maylam J	37.05			37.05
173817	Blackledge, Sylvester (or Blackleche)	32.66	100.00		132.66
173818	——do	10.00			10.00
177748	Bidwell, Henry L	431.95			431.95
172134	Byrnes, R. L	55.70			55.70
172320	Baker, Rienzie H	40.28			40.28
173424	Bowen, Benjamin F	276.40			276.40
173423	Branson, Isaac		73.86		73.86
172203	Blakesley, Alpheus M	46.64			46.64
172058	Brubaker, Jacob C	215.88			215.88
172045	Berger, John B		100.00	100.00	200.00
172597	Bingle, William		25.00		25.00
173147	Bateman, Monroe	58.93			58.93
172099	Blurton, jr., John	2.64	33.34		35.98
172049	Britton, Charles E	167.56			167.56
172258	Beard, Jeremiah G	301.14			301.14
123831	Baker, Henry	69.06			69.06
171948	——do	7.50			7.50
173394	——do	4.85	90.00		94.85
173395	——do		10.00		10.00
173618	Baptiste, John			90.00	90.00
173619	——do			10.00	10.00
173131	Bolin, Christopher	182.00			182.00
172594	Bilderback, Smith	149.74			149.74
173098	Bell, Lewis	80.59			80.59
172062	Burk, William	263.03			263.03
171992	Bross, Oliver L	31.39			31.39
172606	Bigelow, Daniel J	3.12	45.00		48.12
172928	Barnhart, Levant W	658.70			658.70
172950	Bartlett, Harrison		90.00		90.00
172951	——do		10.00		10.00
173112	Berry, Joseph	99.96			99.96
173414	Burgess, Charles R	122.89			122.89

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
172735	Baird, Thomas W	$26.55			$26.55
172120	Bailey, Charles M	6.32	$210.00		216.32
172124	Barto, Giles G		96.32		96.32
167634	Bugh, William A	94.97			94.97
173150	Burns, Enoch M	132.94			132.94
173741	Biggs, William	6.14			6.14
173776	Boggs, Alexander	22.66			22.66
173502	Burnell, Joseph H	490.88			490.88
172205	Bradshaw, George R	182.25			182.25
171897	Bending, Henry R	6.99	85.00		91.99
173773	Bartlett, Chauncey L	95.62			95.62
177115	Bailey, Clarence E	5.78	25.00		30.78
173636	Burrell, Alexander	6.27			6.27
173637	do	.70			.70
167789	Brown, James C	57.80	50.00		107.80
162304	Butrick, Philemon	49.99			49.99
173417	Bundy, Thomas M	1.09	200.00		201.09
166269	Burkholder, William H	3.25			3.25
155951	Bowdle, Thomas H	523.09		$50.00	573.09
171963	Blongo, Elacy	3.36			3.36
171964	do	.37			.37
171967	Bell, Lewis	27.86	100.00		127.86
171968	do	10.00			10.00
171960	Brooks, Thomas	33.79	100.00	84.50	218.29
171961	do	10.00			10.00
171071	Beal, George W	46.12			46.12
171587	Bartlett, Lewis C	12.80			12.80
172180	Bradbury, Albert L	3.54		50.00	53.54
166186	Bilanger, Alphonso	59.14			59.14
166194	Bolster, Almon	23.12			23.12
172143	Bukey, Van H	12.01			12.01
172144	Bond, E. D. J	62.23			62.23
171479	Burleson, Asa R	37.20			37.20
171969	Barnes, Frank	13.86			13.86
171970	do	1.54			1.54
171522	Bean, Arthur	13.43			13.43
171523	do	1.49			1.49
171596	Blodgett, Joseph C	38.04			38.04
171520	Brice, Houston	8.03	100.00		108.03
171521	do	10.00			10.00
172848	Brookins, Jerrod	66.63			66.63
172849	do	7.50			7.50
173412	Beach, George W	38.06			38.06
172832	Bennett, Benjamin	33.26	100.00		133.26
172833	do	10.00			10.00
171952	Brown, John M		191.40		191.40
171953	do	1.40	8.60		10.00
172899	Briggs, James S		200.00		200.00
166198	Battis, George R. W	8.43	100.00		108.43
166088	Burnan, Leander	155.74			155.74
171488	Brisbin, John	15.94			15.94
173091	Brand, Charles R	45.61			45.61
171861	Blake, George S		98.79		98.79
171165	Bullitt, William A	222.97			222.97
171170	Belcher, Louis A	296.70	100.00	50.00	446.70
172846	Babbins, Ambrose	15.87			15.87
172847	do	1.76			1.76
172030	Barr, Abraham M	73.41			73.41
173646	Bacon, Joseph		90.00		90.00
173647	do		10.00		10.00
173376	Baum (or Vawm) George	27.26	100.00		127.26
173377	do	10.00			10.00
173508	Brown, James M	116.74			116.74
171476	Burgess, Jefferson	48.30			48.30
167643	Bartlett, Alonzo	34.99	100.00		134.99
177501	Bean, Timothy M	134.30			134.30
176746	Brees, Samuel W. (alias Sam. F. Breese)	366.05			366.05
173795	Boyles, James	.65			.65
172078	Bentley, Francis A	104.74			104.74
172321	Brewer, Aaron F	44.34			44.34
172871	Bradley, Adoniram J	85.68			85.68

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	WAR DEPARTMENT—Continued.				
174147	Bolton, Alfred	$18.53			$18.53
173769	Brunson, John L		$50.00		50.00
173751	Barber, Henry A	50.78	100.00		150.78
172005	Brooks, Joseph	136.14			136.14
165785	Bishop, Charles S	8.94			8.94
173420	Baker, Ira J	6.35			6.35
166936	Bronson, Chester	8.02			8.02
171516	Broxton (or Brockster), Benjamin	22.00	195.00		217.00
171517	....do	10.00			10.00
171085	Bodwell, Joseph	46.73	75.00	$50.00	171.73
172129	Besse, Heinrich		200.000		200.00
165298	Bolden, McKenzie	7.14			7.14
173158	Breathitt, John W	21.85			21.85
173529	Berry, Richard	53.22			53.22
71661	Bellinger, Samuel		46.94		46.94
174571	Babcock, James S	30.31		50.00	80.31
170089	Black, John F	74.15			74.15
174972	Brown, Henry H	28.94			28.94
174912	Bruce, Anthony	37.35	80.00		117.35
174913	....do	7.50			7.50
155713	Bredt, Henry	201.18			201.18
172860	Brigham, Charles E	11.83			11.83
172747	Bott, John	21.95			21.95
172008	Burns, Michael	37.76	25.00		62.76
175091	Brickner, Michael		100.00		100.00
174835	Butler, Eli		125.00		125.00
174623	Benton, Thomas H		90.00		90.00
174624	....do		10.00		10.00
175055	Brown, Alexander	140.80			140.80
174397	Beebe, Dwight	106.61			106.61
100845	Baldwin, Franklin J	171.70			171.70
172127	Billmayer, Louis		300.00		300.00
174914	Billy (alias Richardson), Frank	8.94			8.94
174105	Barney, John W	17.79			17.79
173495	Bagley, William	12.47			12.47
174245	Boykin, Robert	12.61			12.61
174246	....do	1.40			1.40
174041	Baldwin, George E	22.76			22.76
172271	Bressler, Charles	1,459.56			1,459.56
174658	Bush, Giles H	66.98	33.33		100.31
174853	Bellamy, Robert	416.80			416.80
174896	Battie, Max	30.09			30.09
174897	....do	5.00			5.00
153411	Blakey, Mary	12.80			12.80
174341	Bean, William H	126.00			126.00
175103	Beisel, Peter	23.92			23.92
173400	Burns (or Byrns), Nathaniel		190.00		190.00
173401	....do		10.00		10.00
173707	Ball, Charles M	42.99			42.99
173668	Barron, Alvin H	5.76	200.00		205.76
165227	Bartlett, Frederick J	7.73			7.73
173806	Brooks, Elisha	66.53			66.53
174141	Bess, James L	76.55	100.00		176.55
174614	Burton, George	25.52			25.52
174615	....do	5.00			5.00
173809	Boyd, John	8.29	200.00		208.29
174984	Blanchard, Isaac C	298.34	100.00		398.34
174997	Barrows, Walter A	89.42			89.42
174177	Beary, Delaney	3.34			3.34
174172	Buck, Robert H	166.07			166.07
167648	Blackett, Henry S	1,029.90			1,029.90
173689	Baker, James	99.26			99.26
177103	Brown, Peter P	41.93			41.93
175088	Brooks, Joseph	961.68			961.68
175818	Bailey, Edward	195.75			195.75
173677	Barr, James	88.29			88.29
175082	Brooks, Emerson P	110.30			110.30
167641	Broadwell, Wm. L	80.66			80.66
175020	Berryhill, John H	9.58			9.58
175108	Burger, John			100.00	100.00
173494	Billings, Frederick		100.00		100.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
172797	Buchanan, Ezra	$23.77		$50.00	$73.77
172794	Bascom, John T	1.30	$100.00		101.30
173509	Bacus, John	2.40	100.00		102.40
172060	Blunk, Benjamin F	42.95	100.00	100.00	242.95
174917	Bernard, William	45.64	100.00	100.00	245.64
174918	do	10.00			10.00
167134	Brayton, Martin N	4.53			4.53
172780	Ballard, William H	158.52			158.52
174566	Bennett, George N	124.93			124.93
173201	Brooks, George C		100.00		100.00
176021	Basisky, Herman	19.69			19.69
174181	Booth, Francis M	4.06			4.06
169195	Brewer, George E	216.70			216.70
175077	Boyd, James A		19.87		19.87
174938	Beebe, Warren S	4.06			4.06
174392	Brees, Ezra		100.00		100.00
174337	Burnett, William C	91.41			91.41
173674	Baird, Isaac W	1.59			1.59
156206	Best, George	19.97			19.97
174567	Bagshaw, George	28.37	185.00		213.37
164934	Bonworth, David		3.34		3.34
175135	Brennan, Patrick	38.69	360.00		398.69
169539	Barr, Benjamin	30.00			30.00
166636	Bird, Moses	9.77			9.77
176491	do	1.08			1.08
168655	Braught, Samuel M	15.48			15.48
174166	Bowers, Charles A	20.66			20.66
155674	Brumley, John R	11.62			11.62
169685	Bodman, John E	28.88			28.88
167363	Basinger, James	37.78	83.34		121.12
173411	Beeson, Ezekiah	13.98	36.00		49.98
166817	Babcock, Robert F	4.75			4.75
156694	Bone, James D	26.43	100.00		126.43
169347	Buckner, William S		207.70		207.70
169348	do	3.47	6.53		10.00
165325	Bastian, Henry	6.60			6.60
167066	Bailey, William T	5.50			5.50
167652	Billhimer, Christopher	4.88			4.88
175060	Brown, Zephaniah		160.00		160.00
167687	Burnett, Joseph N	5.23			5.23
175084	Brewer, James W	8.22		75.00	83.22
162020	Brenington, Wesley	12.09			12.09
176505	do	1.34			1.34
164210	Block, Adam		100.00		100.00
164462	Brizzie, William A., jr	4.26			4.26
165402	Butler, Ben	6.60			6.60
171246	do	.73			.73
166066	Brown, Randolph	8.47		50.00	58.47
167064	Brittain, Harmon P	5.84			5.84
169274	Boyd, Joseph	14.30			14.30
172239	Brant, John H	4.29			4.29
172858	Babcock, Isaac R	17.60			17.60
146251	Cannavin, Joseph	81.90			81.90
146473	Collins, William	203.39			203.39
146021	Cowdrey, Samuel	52.69			52.69
146486	Chandler, Alexander B	6.61			6.61
147002	Church, Charles B	47.48			47.48
147306	Capel (or Caple) David	13.46	100.00	100.00	213.46
147307	do	10.00			10.00
145063	Clark, Andrew J	148.28			148.28
146091	Carey, Oliver H. P	460.12			460.12
156835	Clark, Silas	74.72			74.72
150394	Cook, Edward P	158.63			158.63
155573	Cole, Abner S	146.85			146.85
147296	Clanton, Stephen. (*See* Stephen Prince.)				
147283	Coleman, Littleton (or Tillington, Gordon or Morgan)	3.52	33.33		36.85
147284	do	5.00			5.00
156308	Canfield, Lemuel C	217.90			217.90
155903	Crumrine, David		100.00		100.00
149561	Cavallier, Louis	82.43			82.34

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	WAR DEPARTMENT—Continued.				
146142	Calkins, Almeron E	$66.80			$66.80
156029	Coulon, Louis	5.56			5.56
161375	Chroniger, Charles B	160.98			160.98
156598	Champlin, Victory	776.12			776.12
147025	Claassen, Peter J	41.06			41.06
147329	Colver, Frank B	12.91			12.91
147326	Carr, Jonathan	94.20			94.20
155580	Campbell, Edward L	111.44			111.44
147641	Coogle, George		$75.00	$50.00	125.00
145068	Cauffman, Albert	79.04			79.04
147212	Crandell, William W	66.00	100.00		166.00
147213	Corson, Asail	285.50			285.50
147991	Coldren, Isaac	72.57			72.57
147023	Cullen, James	208.88			208.88
146749	Chipman, Leroy W	32.49			32.49
147347	Clarkson, Theodore F	136.90			136.90
147227	Chambers, Joseph T	47.16			47.16
147723	Crail, Jesse	29.60			29.60
147751	Cole, Richard	367.44			367.44
154864	Conrad, Frederick A	66.46			66.46
146260	Calkins, Henry D	317.28			317.28
147330	Cheney, George W	737.25			737.25
147650	Coburn, Thomas	164.86	100.00	100.00	364.86
148295	Clark, Albert	12.38			12.38
148263	Cline, Levi W		200.00		200.00
148335	Clancy, John	33.62			33.62
148517	Carter, William L	158.62			158 62
143950	Crystal, Ezekiel M		33.34		33.34
148318	Collier, Martin C	30.11			30.11
148492	Colkirk, April	55.54	100.00	50.00	185.54
148493	——do	10.00			10.00
147666	Cartwright, Henry		100.00		100.00
148343	Chadwick, John M		100.00		100,00
148530	Coffield, William		200.00		200.00
148886	Carter, George W	52.68			52.68
148889	Cutler, Martin P	87.32			87.32
148890	Clark, Stephen S	153.52			153.52
145600	Case, Silas and Jane	106.60			106.60
148008	Carels, John H	451.50			451.50
148997	Cauffman, Charles W		90.00		90.00
148998	——do		10.00		10.00
133176	Coder, Charles L	111.48	100.00	50.00	261.48
146907	Carpenter, Homer C	239.05			239.05
147734	Carter, James A	5.34			5.34
148875	Cox, Legrand M		200.00		200.00
148000	Cunningham, James	346.43			346.43
147782	Calkins, William W	4.10			4.10
148349	Clyma, William H	226.18			226.18
148439	Crissey, Giles	36.00			36.00
148539	Cassairt, Jacob	54.98			54.98
148499	Clark, James		90.00		90.00
148500	——do		10.00		10.00
147712	Clark, Daniel C		178.87		178.87
156730	Cootes, William F	63.05			63.05
147802	Card, Phineas A	385.09			385.09
148562	Cook, Reuben W	152.13			152.13
148961	Carr, James W. V		33.34		33.34
149023	Cole, Marshal	58.82	300.00		358.82
149024	——do	10.00			10.00
149115	Carter, Henry H	69.49	100.00		169.49
148372	Curtis, George M	131.65			131.65
148964	Cooper, Jacob	32.27			32.27
148968	Creech, John L		25.00		25.00
149594	Card, Samuel A	205.84			205.84
149595	Chamberlain, Daniel	2.45		100.00	102.45
149792	Curd, Levin	1.26	100.00		101.26
149793	——do	10.00			10.00
148845	Curtis, Lucius C	12.83			12.83
148861	Carter, Joseph	11.90			11.90
148903	Carmack, Joseph W	43.75			43.75
149008	Curley, (Kerley) Turner	167.36	100.00		267.36

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	WAR DEPARTMENT—Continued.				
149009	Curley, (Kerley) Turner	$10.00			$10.00
148858	Cushing, Laban F	12.36			12.36
163825	Conlin, Peter	318.00			318.00
149100	Colburn, Jonathan S	110.32	$46.88		157.20
149086	Clark, Charles A	30.51	100.00		130.51
149097	Chapman, Frank M	4.76			4.76
151090	Cloutier, (or Cloucher) Nelson. (*See* Nel-				
149063	Crain, Simeon	14.60			14.60
149762	Callendar, Byron M	320.89			320.89
149806	Coleman, Daniel	27.54			27.54
149807	....do	5.00			5.00
148454	Coulter, Francis M	76.56			76.56
149020	Crenshaw, John	8.59			8.59
149021	....do	.95			.95
149568	Coffan, Samuel P	142.27			142.27
149640	Corbit, Geo. W	47.72	25.00		72.72
128038	Collins, Sanders A	22.73	85.00		107.73
149614	Collier, Thomas		25.00		25.00
148399	Clay, Henry, 2nd		23.00		23.00
149000	....do		5.00		5.00
149566	Carpenter, Otis A	41.37			41.37
150519	Collins, James	29.46			29.46
150220	Cook, George	35.86			35.86
150399	Clark, Anderson	38.56			38.56
148466	Charter, Smith W	11.36	100.00		111.36
150212	Curkendall, George	60.04			60.04
150479	Constantine, William A	92.87	75.00		167.87
150486	Chamberlain, Valentine B	33.54			33.54
14840I	Clark, Ira W	87.10		$100.00	187.10
149777	Clapps, (or Klebs) Martin		100.00		100.00
150500	Cowdrey, Marcus M	47.31			47.31
150837	Chism, James	43.01			43.01
146047	Clark, Edwin R	249.00			249.00
150538	Cassell, Cammillers R. (or Camillus R.)	61.10			61.10
150539	....do	7.50			7.50
147776	Clark, Thomas	250.72			250.72
145116	Chase, Aaron G	52.00			52.00
149588	Clark, William D			50.00	50.00
150225	Collins, Alva A	79.83			79.83
150424	Cope, Alexis	75.84			75.84
151115	Cockerill, Daniel T	93.95			93.95
149590	Clark, Edwin	84.07			84.07
150849	Creasey, George W	384.41			384.41
150926	Collins, Sidney F	11.58		50.00	61.58
151111	Clapp, Albert A	81.80			82.80
150526	Conyers, Hiram		45.00		45.00
150527	....do		5.00		5.00
148990	Crowell, Robert C	10.33			10.33
149142	Crabb, Harvey	126.82			126.82
150958	Case, Franklin B., Jr	30.38			30.38
151598	Clark, Frank J		25.00		25.00
151601	Clark, Frank S	105.06	75.00		180.06
151601	Clune (or Clunie), James		100.00		100.00
151605	Crane, Rollin C		75.00		75.00
150827	Corning, Edward	145.84			145.84
150930	Chasteen, Nicholas B		100.00		100.00
151198	Cochrane, James L	15.26			15.26
166469	Caston, Edward	20.00	100.00		120.00
166470	....do	10.00			10.00
151001	Clark, William H	94.83			94.83
150229	Carpenter, Joseph R	332.50		50.00	382.50
152004	Cartwright, John D	11.82			11.82
150941	Clark, Henry J	34.50			34.50
166142	Cunningham, William	76.62			76.62
150842	Coleman, Robert L	31.68			31.68
150851	Connelly, Cornelius	2.22	45.00		47.22
150859	Cooley, George B	67.29			67.29
150860	Cox, David H		50.00		50.00
151208	Collins, Thaddeus S	147.07			147.07
150864	Caligan, John E	823.18			823.18

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
151123	Carruthers, Thomas N	$156.58			$156.58
151204	Crissey, William E	140.42			140.42
151619	Curry, Jeremiah E		$200.00		200.00
151175	Conroy, Thomas	58.06			58.06
152083	Coykendall, Morris J		100.00	$100.00	200.00
166435	Cowan, John	372.24			372.24
151183	Carrier, R. W	136.62			136.62
151222	Chase, Hazard, D	220.47			220.47
151580	Carter, John B	47.80			47.80
151892	Cressinger, Daniel B		100.00		100.00
152121	Catterson, Robert F	14.79	100.00		114.79
152165	Cromwell, Henry	22.00	100.00	100.00	222.00
152166	....do	10.00			10.00
151148	Carll, Lindorf H	21.13			21.13
151627	Cross, Elisha W	14.93			14.93
151628	Clark, Aaron W	48.19			48.19
150501	Clark, Stephen A	13.04			13.04
150981	Congdon, David	268.87			268.87
151185	Casler, James L	156.04		50.00	206.04
151589	Carr, Isaac T	54.22			54.22
152480	Coffee, James F		25.00		25.00
152952	Capron, Ara	256.19			256.19
152953	Compson, Hartwell B	406.59			406.59
151900	Cregar, Henry	24.64	13.64		38.28
146056	Capron, Thaddeus H	155.16			155.16
152024	Cash, John H	119.12			119.12
152957	Crittenden, James L	123.02			123.02
150830	Clark, John W	107.08			107.08
151625	Cole, Charles E	38.57			38.57
150870	Chenoweth, William H	232.92			232.92
151180	Cossum, Frederick	27.29			27.29
152518	Cooper, Joseph J	47.14			47.14
153353	Clayton, John V			50.00	50.00
153039	Curtis, Benjamin P	83.76	100.00		183.76
152565	Caldwell, Samuel L		100.00		100.00
149626	Crone, William	8.83		50.00	58.83
152136	Campbell, John	30.99	75.00	50.00	155.99
153171	Craig, Bart		50.93	50.00	100.93
153172	....do		10.00		10.00
148942	Cheeks, John W		100.00	100.00	200.00
152138	Crawford, Cyrus	65.68			65.68
153182	Comprey, Charles (or Chas. A. Campra)		300.00		300.00
153711	Crooks, Daniel J	83.63			83.63
153752	Crafts, George G		100.00		100.00
99543	Carr, Henry S. (*See* Henry C. Packard.)				
151904	Cline, Daniel I	151.74	100.00		251.74
152600	Coppage, George	34.61			34.61
148428	Campbell, Harrison J	6.00			6.00
151139	Coy, Justus F	174.15			174.15
151149	Colburn, R. James	232.01			232.01
152476	Curry, James M		100.00	100.00	200 00
153020	Cook, Alexander H	105.87			105.87
155574	Connett, Samuel R	28.89			28.89
152515	Cook, John H	18.80			18.80
151984	Cook, Archibald		100.00	100.00	200.00
154035	Cope, William		100.00	100.00	200.00
20612	Correll, Henry		100.00		100.00
151026	Crisler, Anslum S	938.61			938.61
107787	Clark, Wm. C	40.33	100.00		140.33
153018	Carpenter, James L	354.56			354.56
153137	Coryell, Nathan	187.51			187.51
153760	Coffin, Mathew B	98.49			98.49
166160	Cleaveland, David	554.51			554.51
151977	Cox, John W	39.91			39.92
152486	Cummings, William W	26.56	40.00		66.56
152981	Cross, Isaac T	72.48			72.48
153056	Cox, Joseph H		200.00		200.00
153441	Collins, Charles	9.35	95.00		104.35
153043	Carver, Jerrel (or Jarrell)	81.73			81.73
153026	Curtiss, George W	49.41			49.41
151013	Custer, William C	115.89			115.89

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
153811	Crawford, Robert O	$171.39			$171.39
152598	Cash, Henry C	270.92			270.92
153434	Conlogue, Joseph S	141.76			141.76
154831	Crie, Reuben F	13.41			13.41
154195	Culver, Truman	272.73			272.73
99377	Currie, William	248.57			248.57
153150	Collett, William H		$100.00	$100.00	200.00
154213	Cunningham, Andrew J	13.41			13.41
154588	Crew, John		375.00		375.00
152622	Cronin, Jerry	55.48			55.48
154815	Case, Stephen G	132.61	10.00		142.61
155391	Clark, James H	227.42			227.42
152027	Caborn, Thomas	47.88			47.88
155157	Cantrell, Green M	10.18			10.18
152989	Chaffee, Simon U		100.00		100.00
153057	Cole, Joseph E	59.80	75.00		134.80
154346	Clevinger, Pinson	25.00	75.00	50.00	150.00
154580	Coultas, James	37.83			37.83
154811	Cook, Marshall N	5.82			5.82
154840	Chase, Philip S	17.01			17.01
155394	Clobridge, Selden C	54.89			54.89
155439	Carr, Lucius C	31.89			31.89
153783	Cheney, Perley C. J	82.74			82.74
154841	Chase, Phillips E		35.00		35.00
154994	Cornwell, Levi E	23.97			23.97
153149	Clute, George N	206.71			206.71
152965	Culbertson, Samuel	143.88			143.88
153457	Clymer, John V	51.13	33.33		84.46
154251	Crisler, Jesse L	97.30			97.30
155017	Conklin, James E			12.50	12.50
155169	Clarke, George R	59.30			59.30
155401	Collier, John Augustus	49.98		50.00	99.98
154747	Cowles, Byron K	136.80	100.00		236.80
155463	Calvin, John P	22.66			22.66
155726	Clark, James W		200.00		200.00
155755	Crater, Lewis	135.17			135.17
155758	Campbell, Cyrus K	54.27			54.27
155873	Cram, Orrin W	51.05			51.05
147743	Carr, Delaney R	33.85			33.85
155876	Callihan, Charles S	412.82			412.82
155164	Camp, Edgar C	72.96			72.96
156112	Coles, William	12.73			12.73
156126	Cason, Henry		199.18		199.18
156127	——do	9.18	.82		10.00
155240	Campbell, William F	70.51			70.51
156739	Cutler, Charles B	67.00			67.00
76337	Coddington, John W	91.94	55.00		146.94
155999	Claussen, John	1,077.94			1,077.94
153886	Copeland, Malcom H	201.08			201.08
154506	Chastain, Mills T	12.67			12.67
155184	Compton, Spencer P	118.40			118.40
155897	Costelloe, Peter	49.71			49.61
103431	Combs, Jeremiah		25.00		25.00
169153	Carr, Alexander A		100.00		100.00
170384	Cory, William C	20.31			20.31
171532	Clark, Nathaniel C	181.09			181.09
170391	Carlin, Charles J	30.03			30.03
167801	Cox, James J	109.30			109.30
155973	Conley, Cornelius M	33.01			33.01
152069	Chase, Joseph H	68.01			68.01
154742	Carter, William N., sr	99.63			99.63
155245	Coleman, George R	610.76			610.76
155589	Carpenter, James E	8.76	100.00		108.76
156795	Conniar, George W	20.04	100.00		120.04
156800	Carr, Henry M	125.50			125.50
156966	Chandler, Charles V	283.26			283.26
161383	Coffman, William H	119.24			119.24
163472	Coucher, Lewis		100.00		100.00
163484	Cox, Wesley	43.05			43.05
163762	Clark, John B	17.42			17.42
152064	Clifford, Joseph E	128.90			128.90

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
156799	Caster, James M	$56.44			$56.44
163508	Crist, Lawrence	52.86			52.86
163628	Clark, William		$100.00		100.00
163629	Contant, Augustus		100.00		100.00
163764	Culver, Timothy B	661.57			661.57
163844	Callen, Augustus G	14.11			14.11
155907	Carroll, Thomas		75.00		75.00
163503	Chamblin, Marcus	73.23			73.23
163801	Coburn, Calvin	24.23			24.23
155856	Coleman, William H	24.53	260.00		284.53
155864	Caldwell, Reuben	79.46			79.46
155865	Crawford, Shaderic	70.93			70.93
155910	Craig, James L		19.71		19.71
163772	Cassel, Jacob E	154.27			154.27
163734	Coakley, Eliphas	109.36	33.33		142.69
156630	Collins, George K	53.32			53.32
163793	Charlton, John R	86.54			86.54
136941	Cary, John H. (*see* John Wholey)				
156819	Churchill, William	568.79			568.79
165014	Chamberlain, Orville T	109.65			109.65
164574	Cazzell, Gabriel H	3.71	33.34		37.05
164272	Casey, James M	107.18	100.00	$50.00	257.18
164177	Coffin, James A	379.98			379.98
155270	Craft, Almond G		75.00	50.00	125.00
163740	Crow, William		33.33		33.33
163715	Clark, Davis M	8.71			8.71
164599	Crow, Eleanor	170.96			170.96
165016	Cole, Samuel H	139.30			139.30
164666	Crall, James S	31.46			31.46
163861	Carpenter, John Y	20.62			20.62
164784	Cline, Jonas C	148.80			148.80
156734	Clapp, William R	151.99			151.99
164171	Connors, Patrick	48.96	75.00		123.96
163785	Chase, James	19.41			19.41
155750	Carroll, Chandler W	47.49			47.49
164178½	Carmac, Bacus		90.00		90.00
164179½	——do		10.00		10.00
172261	Clark, Rothschild N	12.90	100.00		112.90
156718	Chappel, William H (alias James Jarvis)	186.44			186.44
68950	Christy, Israel	117.28			117.28
156629	Coville, Charles E	178.08			178.08
156827	Clark, Paul	30.88			30.88
164173	Campbell, John A	347.04			347.04
164424	Chandler, Richard P	10.75			10.75
164604	Cundiff, William H	97.05			97.00
164608	Charles, Andrew J	27.70	75.00	50.00	152.70
164664	Corey, Josiah E		70.00		70.00
164805	Coulter, William A	163.15			163.15
165109	Copp, Francis M	13.00	120.00		133.00
165853	Carroll, William H		20.00		20.00
164290	Clement, Henry S	20.86			20.86
165461	Calip, Alexander	346.90			346.90
164711	Crowel, Peter	5.20	100.00		105.20
156927	Commons, John M	398.83			398.83
164413	Carden, Wright R	29.45	75.00	50.00	154.45
165871	Conger, Dennis		100.00		100.00
165182	Crozer, James G	130.37			130.37
164621	Conde, Winfield S	15.30			15.30
165026	Chamberlain, James N	77.00			77.00
165059	Carberry, Henry (or Wm. H. Carbray)	4.76	300.00		304.76
164708	Cradlebaugh, John	254.80			254.80
164689	Chamberlin, Luke	2.33	100.00		102.33
154491	Calvin, Geo. W	67.93			67.93
164426	Clayton, Cornelius C	24.14			24.14
156924	Clark, John C	61.31			61.31
156923	Crow, Joseph H	121.16			121.16
165203	Colerick, William	394.73	25.00		419.73
164495	Cook, James H		74.00		74.00
166224	Cones, Christopher C	27.64	100.00		127.64
164720	Culbertson, William		100.00		100.00
165197	Crossman, Asa L		75.00	100.00	175.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
165017	Collins, Jno. J	$91.49			$91.49
165463	Cravens, John O	131.90			131.90
166221	Coates, John G	92.81			92.81
166219	Chenoweth, Nelson T	16.76			16.76
165129	Corse, Asa D	19.25			19.25
166054	Chappell, William A		$100.00		100.00
165822	Coldiron, William B	49.60			49.60
166411	Christerson, Holger	52.00			52.00
164786	Cellar, J. A. F	1,211.55			1,211.55
166218	Clayton, John R	49.92			49.92
164631	Carter, Henry	152.87			152.87
164625	Cloud, William T	66.82			66.82
166223	Chamberlain, Robert S	27.49			27.49
165208	Creager, Marvin H	56.11			56.11
165128	Campbell, John F	146.93			146.93
165033	Clifton, Burditt A	523.06			523.06
164726	Claghorn, George L	133.92			133.92
165884	Crane, Carso	97.17			97.17
165039	Chambers, Miles	34.20			34.20
165197	Crossman, Asa L		75.00	$100.00	175.00
165447	Cooper, William W		100.00	100.00	200.00
166236	Collier, John H	81.97			81.97
165912	Crotty, James	68.72	75.00	50.00	193.72
166055	Cole, Job N	5.46	100.00		105.46
165045	Charley, William	35.08	90 00		125 08
166232	Crooks, Louis	92.41			92.41
164603	Cochran, Richard L	75.30			75.30
166143	Cosgrove, James F	87.90	33.33		121.23
167571	Clark, John	67.66			67.66
77862	Church, Egbert H	114.23	55.00		169.23
163305	Caruthers, William D	10.87			10.87
164427	Compton, David	8.33			8.33
166098	Collins, Frank		30.82		39.82
166099	....do	2.49	2.51		5.00
166456	Conner, John		90.00		90.00
166457	....do		10.00		10.00
170628	Cown, George A		234.36		234.36
166116	Coleman, John W	78.22	100.00		178.22
166117	....do	10.00			10.00
166458	Camper, John H		90.00		90.00
166459	....do		10.00		10.00
166488	Carter, Peter		81.00		81.00
166489	....do		7.50		7.50
156934	Crone, Louis E	23.50			23.50
167311	Chadwick, Charles C	122.30			122.30
166147	Conklin, Ketcham S	82.89			82.89
165930	Carr, Charles	260.22			260.22
166394	Coleman, Frank	62.83			62.83
166710	Caisse (or Caise), Antoine	124.66	25.00		149.66
164445	Carley, Ambrose (or Amberson)	94.41	66.66		161.07
165921	Coleman, James C	63.42			63.42
166661	Clark, Edwin N		100.00		100.00
167282	Crawford, James		145.00		145.00
167283	....do		10.00		10.00
166979	Cox, Cyrus	10.75			10.75
165925	Coe, Jerome H	72.99			72.99
166009	Carpenter, Luman N	28.59			28.59
166229	Corbit, John	35.37	440.00		475.37
165175	Childs, George H	32.62			32.62
172788	Culver, John B	78.64			78.64
156709	Castile, George H		87.73		87.73
167373	Cummins, Charles H	38.00			38.00
167315	Clark, Thomas	104.63			104.63
166503	Clark, Henry	812.09			812.09
166447	Clark, John W	29.64			29.64
165979	Carney, George	6.07	100.00	100.00	206.07
166498	Cornell, John	110.42			110.42
165476	Cason, Joseph T	473.24			473.24
167864	Coffee, George C		185.00		185.00
167589	Conover, Dominicus		200.00		200.00
167296	Cronso, Charles	116.14			116.14

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	WAR DEPARTMENT—Continued.				
165488	Cook, Wm. S	$14.33			$14.33
174022	Combs, John T	4.99			4.99
168053	Coleman, Frank	8.72			8.72
168054	....do	.97			.97
167308	Churchill, Mendal	122.15			122.15
166974	Curry, Henry	141.76			141.76
168149	Colville, James W	116.40			116.40
156943	Compton, Stephen J	122.27			122.27
163808	Campbell, Thomas	29.94	$285.00		314.94
167845	Carter, Jacob	35.11	100.00		135.11
167846	....do	10.00			10.00
168153	Couse, Edward G		100.00		100.00
168143	Crawford, Luman G	71.00			71.00
155454	Corey, Hugh M		200.00		200.00
172279	Carrington, George D	108.40			108.40
163703	Chappell, Albert W		100.00		100.00
167600	Coleman, William H		25.00		25.00
168339	Cutler, Ezekiel	76.03			76.03
168342	Church, Francis O			$50.00	50.00
148231	Culham, James	19.10			19.10
168551	Cogbell (or Cogwill), Sandy	21.63	100.00	100.00	221.63
168552	....do	10.00			10.00
166502	Clark, John	168.08			168.08
168158	Clark, William A	40.19			40.19
167921	Cantleberry, Emanuel B	13.20		50.00	63.20
167909	Collier, Abijah	9.90	100.00	100.00	209.90
167195	Crotzer, Daniel		105.00		105.00
167199	Clark, Charles N	176.79			176.79
167200	Carnaham, Robert H	18.13			18.13
167196	Cowell, Benjamin F	16.93	168.33		185.26
167606	Cottingham, Joseph W	130.50			130.50
167607	Clemons, Samuel S	71.46	33.33		104.79
166159	Critzer, Otho D	98.90			98 90
163644	Campbell, John M	308.79		50.00	358.79
167626	Coventry, Charles B	127.47			127.47
168169	Cowles, Sylvester D	213.60			213.60
167845	Carter, Jacob	35.11	100.00		135.11
167846	....do	10.00			10.00
169339	Callaway, Benjamin		40.00		40 00
163697	Cox, Charles J		100.00		100.00
167853	Cornwell, Lewis W		200. 0		200.00
169140	Coulon, Michael	42.11	190.00		232.11
169575	Carrington, Julius M	283.54			283.54
168775	Chittenden, George F	81.25			81.25
169137	Church, Alfred	24.29			24.29
155718	Conway, Thomas	5.93	15.00		20.93
167237	Conklin, John	60.96			60.96
169582	Claflin, Nelson H	84.57			84.57
167802	Connelly, Henry M	79.46			79.46
156935	Calhoun, James T	19.49			17.49
169141	Charles, Samuel	17.16			17.16
167350	Chapman, Frank	110.37			110.37
166173	Capoot, John	8.60	210.00		218.60
170216	Cushing, Leander (alias Jules A. Walden)	49.46			49.46
155105	Casad, John F	45.60	150.00		195.60
168346	Carley, David W	194.15			194.15
169865	Cadwell, Luman L	128.68			128.68
169152	Cope, Samuel S	21.29			21.29
168362	Charleton, William	63.39			63.39
169222	Carnine, Peter M	8.00			8.00
167245	Compton, James	42.72			42.72
166171	Cushon, George H	.70	75.00	50.00	125.70
168359	Clason, Dewitt	42.66			42.66
170106	Clay, George. (*See* George Turner.)				
170383	Cleveland, Martin B	82.02			82.02
169626	Collins, Elliott F	77.43			77.43
170572	Carroll, John	22.26	100.00		122.26
170573	Carroll, John	10.00			10.00
175148	Collins, Elisha J	500.84			500.84
167369	Cattle, Philip S	145.21			145.21
170229	Carpenter, James, jr	40.23			40.23

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
170423	Conner, Henry C	----------	$140.00	----------	$140.00
169864	Case, Sherman A	$495.02	----------	----------	495.02
167408	Craine, Arthur C	137.74	----------	----------	137.74
170580	Curry, Henry	93.27	100.00	----------	193.27
170581	------do	10.00	----------	----------	10.00
165582	Culver, Emma R	3.24	----------	----------	3.24
174047	Cameron, Robert A	26.90	----------	----------	26.90
165264	Culver, Newton	251.44	----------	----------	251.44
169915	Campbell, Alexander	198.24	----------	----------	198.24
170654	Campbell, Albert H	41.54	----------	----------	41.54
165980	Carney, Edward	24.07	----------	----------	24.07
169920	Carmen, James L	----------	100.00	----------	100.00
169237	Curtis, Francis J	----------	100.00	----------	100.00
167368	Collins, Calaway	9.75	----------	----------	9.75
169904	Chrysup, George W	220.48	----------	----------	220.48
169902	Clark, Joseph C	334.75	----------	----------	334.75
167011	Clark, Felix	7.04	----------	$100.00	107.04
167012	------do	10.00	----------	----------	10.00
170619	Carson, Alpheus C	----------	----------	50.00	50.00
170609	Cooper, George	22.89	----------	----------	22.89
170610	Cooper, George	5.00	----------	----------	5.00
169887	Carpenter, John A	205.30	----------	----------	205.30
170574	Carr, Charles	1.53	33.33	----------	34.86
170575	------do	5.00	----------	----------	5.00
175485	Coats, William H. H	----------	100.00	----------	100.00
169243	Culver, Norman K	231.87	----------	----------	231.87
171175	Cummins, James H	36.52	----------	----------	36.52
171107	Costin, Jackson	10.12	----------	----------	10.12
171103	Cornell, George	8.37	----------	----------	8.37
171104	------do	.93	----------	----------	.93
171492	Clay, Henry	10.60	----------	----------	10.60
171493	------do	1.18	----------	----------	1.18
17905	Chambers, P. H	45.33	----------	----------	45.33
170246	Cornell, Mansfield	164.18	----------	----------	164.18
170434	Cary, Ezra H	33.42	----------	----------	33.42
169608	Coquillard, Henry	20.56	----------	----------	20.56
170242	Conover, John	41.47	100.00	----------	141.47
170408	Crowley, Bartholomew	59.23	----------	----------	59.23
149699	Carty, Robert	----------	75.00	----------	75.00
169390	Case, Orrin S	68.23	----------	----------	68.23
166174	Cleland, David	12.13	----------	----------	12.13
164679	Chappell, Enoch W	9.09	----------	----------	9.09
161040	Cady, Henry K	64.99	----------	----------	64.99
163305	Caruthers, William D	10.87	----------	----------	10.87
163301	Coleman, William	5.06	----------	----------	5.06
176141	Clifton, Charles C	1,298.34	----------	----------	1,298.34
170070	Cover, John F	96.15	----------	----------	96.15
176065	Cunningham, James	24.17	200.00	----------	224.17
171537	Carroll, Thomas	60.96	100.00	----------	160.96
170069	Clark, William	110.01	75.00	----------	185.04
171579	Crandell, Lewis H	66.24	----------	----------	66.24
171177	Cook, John Q. A	155.88	----------	----------	158.88
I70864	Criswell, John M	30.28	----------	----------	30.28
170869	Calvin, Samuel Y	9.63	----------	----------	9.63
166190	Currier, George W	----------	33.34	----------	33.34
170663	Clark, Noah	322.10	----------	----------	322.10
170874	Conard, Cornelius	84.60	----------	----------	84.60
171185	Church, Robert O	167.37	----------	----------	167.37
171263	Cole, Henry	46.00	300.00	----------	346.00
171264	------do	10.00	----------	----------	10.00
171508	Cook, Edward	17.02	50.00	----------	67.02
171509	------do	5.00	----------	----------	5.00
171502	Crayton, Madison	9.06	----------	----------	9.06
171503	------do	1.01	----------	----------	1.01
145614	Cox, Zachariah	6.95	----------	----------	6.95
172223	Cooper, James B	9.28	----------	----------	9.28
171191	Cook, Hiram	93.92	----------	----------	93.92
170633	Clark, Frederick J	145.86	----------	100.00	145.86
171992	Cook, George W	----------	96.66	----------	196.66
172093	Crispin, Laban P	----------	66.67	----------	66.67
170390	Crain, Cyrus S	434.19	----------	----------	434.19

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
166069	Carver, Socrates	$246.47			$246.47
170635	Cram, B. Franklin	49.97	$100.00		149.97
166192	Crossan, John C	13.59			13.59
170671	Crooker, Lucien B	14.10			14.10
172172	Crandlemire, William		100.00		100.00
170442	Caffrey, James	38.56			38.56
171466	Conterno, Octavus D	10.50			10.50
170879	Clark, Thomas W		100.00	$100 00	200.00
166082	Conyers, Alpheus W	2.52		50.00	52.52
166081	Clayton, George P	23.12			23.12
174531	Copp, James F	710.65			710.65
163493	Crawford, James W	289.05			289.05
172575	Cole, James E	39.98			39.98
170676	Chandler, T. C	196.10			196.10
169345	Conley, Lawson	11.91			11.91
169346	....do	1.32			1.32
168090	Cahorn, James	89.13	300.00		389.13
168371	....do	10.00			10.00
172931	Carter, Ben	43.97			43.97
172932	....do	7.50			7.50
171524	Carter, Moses	11.64			11.64
171525	....do	1.29			1.29
102811	Crabtree, Marion	121.85			121.85
172301	Cathcart, Charles (or H. C. Williams)		96.50	100.00	196.50
171208	Carr, Wellington F	69.43			69.43
172573	Chafey, James	67.67		50.00	117.67
172109	Crenshaw, Lennard		200.00		200.00
171139	Comstock, Owen	106.53			106.53
170071	Cantelo, Frank	78.46			78.46
172577	Crall, Henry J		200.00		200.00
172041	Cochran, Ambrose W	6.94			6.94
171600	Coon, Orson N		100.00		100.00
171169	Coultner, Willam	228.10	100.00	50.00	378.10
172901	Codner, Edwin S		200.00		200.00
170076	Clark, Atherton	165.54			165.54
168130	Conaty, Thomas G	81.70			81.70
169331	Carperter, Thomas	12.53	100.00		112.53
172241	Cummings, James	88.71	200.00		288.71
172243	Coolidge, Henry P	94.10			94.10
172245	Cole, William T	188.13			188.13
58476	Clark, Philip	1.48	185.00		186.48
172191	Cruse, George W	982.62			982.62
173456	Corners, James P	145.54			145.54
172591	Crothers, John W	97.47			97.47
173454	Cupp, Valentine	91.73			91.73
155849	Chalfin, William W	336.62			336.62
173148	Carr, Henry C	47.48			47.48
173462	Curry, William L	193.35			193.35
164286	Cretors, John	107.71			107.71
156949	Calwell, William	346.42			346.42
166404	Carle, James	16.77			16.77
173133	Crozer, William C	10.45	100.00		110.45
171082	Couch, Reuben C	439.60			439.60
172327	Calkins, Darius C	74.41			74.41
172608	Champlin, Elijah	57.11	100.00	100.00	257.11
173466	Chamberlin, William A		100.00	100.00	200.00
172315	Campbell, Gabriel	108.64			108.64
173143	Caldwell, Hugh A		100.00	100.00	200.00
174131	Chase, Seymour	14.65			14.65
173142	Clark, James H	9.13			9.13
171876	Chase, Washington I	133.82			133.82
171099	Carris (or Carras), Joseph	16.34			16.34
171100	....do	1.82			1.82
164158½	Cohen, Isaac	4.47			4.47
171224	....do	.50			.50
172250	Curtis, Albert D	221.66	25.00		246.66
172600	Coovert, Samuel	.68	100.00		100.68
170650	Coffey, Thomas	88.80	75.00	50.00	213.80
165574	Costello, Thomas	2.82			2.82
173733	Cortright, John	31.63	200.00		231.63
163303	Casey, James	4.03			4.03

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
165992	Conner, William H. H	$30.75			$30.75
173108	Clay, C. C	6.25			6.25
304671	Calvert, William W	63.04	$160.00		223.04
172194	Cresson, Charles C	74.58			74.58
173747	Crowley, Mickel		150.00		150.00
174096	Clark, C. P	49.19	15.00		64.19
172073	Cunningham, William P	200.70			200.70
164159½	Crittenden, George	5.20			5.20
171225	do	.58			.58
173482	Clase, John	6.25			6.25
172206	Cook, Samuel W	225.50			225.50
172785	Cooper, Henry P	69.50			69.50
174241	Condy, Jeremiah		90.00		90.00
174242	do		10.00		10.00
173844	Cockle, Isham		99.28		99.28
173845	do	9.28	.72		10.00
163977	Conner, James	4.69			4.69
174250	Carroll, Charles		85.19	$100.00	185.19
174891	do	3.09	6.91		10.00
172968	Crittenden, Henry	9.86			9.86
172969	do	1.10			1.10
172966	Carter, John	12.23			12.23
172967	do	1.36			1.36
173612	Clark, Edward	9.06			9.06
173613	do	1.01			1.01
172289	Crumbaugh, Thomas D	289.49	50.00		339.49
173438	Cochran, Jesse H	296.69			296.69
172281	Cronk, John	97.31			97.31
174027	Cooper, Isaih	131.91			131.91
172787	Collins William D	101.37			101.37
174375	Currie, Samuel	261.79			261.79
173470	Cowdry, Melancthon C	81.23			81.23
173768	Collins, William	1.30	50.00		51.30
174814	Caldwell, James P	29.36			29.36
173436	Conklin, Francis M	6.38	200.00		206.38
174534	Conley, William	34.65			34.65
173518	Childers, Samuel A	98.81			98.81
174139	Cooper, David	25.10	100.00		125.10
174140	Cunningham, John	119.66			119.66
173798	Chapman, Joseph	.77			.77
167638	Carey, Chas. P	278.38	100.00		378.38
174389	Carlisle, Eber S	92.23			92.23
174382	Cauthra, John	244.19			244.19
173488	Cramer, Hazel C	35.77	35.00		70.77
171877	Churchill, Francis H		100.00		100.00
174655	Conover, Erasmus M	79.47			79.47
174821	Crossley, Samuel	36.92			36.92
174030	Carroll, John W	71.81		50.00	121.81
164920	Coake (alias Cox), Odom	37.13			37.13
173439	Clayton, Archibald N	343.30			343.30
174399	Crandell, William	51.60			51.60
173499	Craigne, Nelson F	37.93	100.00		137.93
174946	Cheney, John	64.64			64.64
154608	Catlin, Isaac S	62.63			62.63
173691	Clark, Franklin D	136.04	88.89		224.93
174045	Clark, William D	438.76			438.76
174983	Clark, William E	76.10	33.33		109.43
174043	Clay, Irving L	402.62			402.62
173120	Coulter, John A	36.80			36.80
174939	Charles, William S	208.03			208.03
172750	Culp, Melvin	61.47	400.00		461.47
174402	Carter, Gilbert H		75.00		75.00
174933	Carey, Charles H	2.95	100.00		102.95
173745	Cross, Samuel T	144.90			144.90
169191	Cadwell, Henry S	55.05			55.05
174339	Cook, Benj. F	3.54		50.00	53.54
174538	Cutter, Samuel	92.19			92.19
174556	Cunningham, James T	86.59			86.59
173157	Colman, Charles J	627.90			627.90
174985	Cole, Gilbert L	9.54		50.00	59.54
175131	Corns, James	70.73			70.73

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	WAR DEPARTMENT—Continued.				
62274	Conger, David	$184.64	$100.00	----------	$284.64
176055	Crab, Jeremiah	----------	266.01	----------	266.01
174048	Conlee, A. Jackson	237.09	----------	----------	237.09
166272	Curtis, Sidney	2.82	----------	----------	2.82
169245	Clark, George E	85.06	35.00	----------	120.06
174941	Cankin, Henry M	21.92	----------	----------	21.92
159906	Combs, George W	34.64	----------	----------	34.64
174161	Crider, John	19.50	----------	----------	19.50
174559	Cole, George	452.26	----------	----------	452.26
172235	Conley, Benson S	5.37	25.00	----------	30.37
175146	Crenshaw, William H	52.26	100.00	----------	152.26
175011	Crandall, Rodolph	210.59	----------	----------	210.59
165395	Canada, Edmund	5.12	----------	----------	5.12
171243	------do	.57	----------	----------	.57
172789	Cropper, James N	93.98	----------	----------	93.98
168447	Chambers, Andrew	26.45	----------	----------	26.45
173749	Clark, James	38.77	----------	----------	38.77
167056	Combs, IsaacD	3.63	----------	----------	3.63
169507	Case, Cyrus C	8.66	----------	----------	8.66
169298	Clark, William W	4.06	----------	----------	4.06
173408	Clark, Joseph	----------	99.16	----------	99.16
173409	------do	9.16	.84	----------	10.00
156693	Coddington, James D	5.46	----------	----------	5.46
165663	Caldwell, William H	6.15	----------	----------	6.15
174386	Chadderdon, John F	----------	49.46	----------	49.46
169461	Clark, Alexander	3.25	----------	----------	3.25
159860	Cotta, Peter	8.92	15.00	----------	23.92
164970	Creasman, Robert	3.51	----------	----------	3.51
174828	Cook, Chauncey L	199.25	----------	----------	199.25
173658	Carter, Albert	4.50	----------	----------	4.50
153816	Carnahan, Charles M	113.82	----------	----------	113.82
164147	Chilcott, Ephraim	26.00	----------	----------	26.00
166177	Clement, Edwin C	3.83	----------	----------	3.83
166287	Chalmers, George H	----------	5.00	----------	5.00
167616	Clark, Frank M	131.68	----------	----------	131.68
173187	Chandler, William	----------	300.00	----------	300.00
173661	Carter, John	4.40	----------	----------	4.40
175061	Cahal, James L	3.10	----------	----------	3.10
176572	Curren, Patrick	1.68	----------	----------	1.68
146457	Denning, William B	7.43	----------	----------	7.43
147313	Daniels, Oramel G	322.04	100.00	----------	422.04
156305	Dillon, William	367.16	----------	----------	367.16
146711	Dimmler, Louis	59.43	----------	----------	59.43
156306	Defenbaugh, Peter	----------	133.83	----------	133.83
155728	Dowling, William	220.31	----------	----------	220.31
156674	Degetau, Christian M	33.06	55.00	----------	88.06
156601	Doherty, John	310.14	----------	----------	310.14
156845	Dunn, Edward H	130.22	----------	----------	130.22
158238	Dustin, Moses N	44.90	----------	----------	44.90
152314	------do	7.50	----------	----------	7.50
147680	Dye, Anderson	----------	145.00	----------	145.00
147681	------do	----------	10.00	----------	10.00
145268	Dill, James P	----------	----------	$100.00	100.00
146738	De Boe, Martin	7.74	----------	----------	7.74
146505	Dewey, Henry H	11.63	----------	----------	11.63
146268	Davidson, William C	208.05	----------	----------	208.05
156671	Dennis, Darius	----------	260.00	----------	260.00
147682	Durden, Allen (or Adam)	115.65	300.00	----------	415.65
145067	Dwire, Harrison	66.82	----------	----------	66.82
146510	Doran, James	----------	235.00	----------	235.00
150542	Davis, Robert P	26.33	100.00	----------	126.33
150543	------do	10.00	----------	----------	10.00
148238	Donohue, Thomas	23.07	----------	----------	23.07
146744	Dodsley, William R	9.36	----------	----------	9.36
148278	Davis, James	29.90	----------	----------	29.90
147345	Davis, Charles	119.30	----------	----------	119.30
148496	Davis, Peter	99.62	155.00	----------	254.62
148497	------do	10.00	----------	----------	10.00
143944	Denny, Robert B	12.61	----------	----------	12.61
147716	Downey, John R	90.83	85.72	----------	176.55
147798	Durant, Edward T	238.00	----------	----------	238.00

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	WAR DEPARTMENT—Continued.				
148288	Derby, Loring W	$24.89			$24.89
148301	Davis, George	10.45			10.45
148524	Duvall, Sylvester	86.53			86.53
147653	Dailey, Nicholas	75.39	$150.00		225.39
148336	Daly, Charles		33.34		33.34
163755	Daywalt, John	97.89	100.00	$50.00	247.89
148379	Dick, John	27.13			27.13
128371	Dunham, Isaac A	32.76			32.76
148508	Drummond, Louis	28.70	100.00	100.00	228.70
148328	Dripps, James		25.00		25.00
147804	Dexter, Simon B	65.12			65.12
148009	Davis, Charles L	14.18			14.18
148314	Davis, Seth		100.00		100.00
148846	Dorr, James B	18.66			18.66
148971	Duncan, Samuel	129.15			129.15
148555	Dale, Eli M	689.16			689.16
149602	Doan, Sampson C		100.00	50.00	150.00
149103	Drake, Alexander C	4.65			4.65
148843	Dorsey, Edward		100.00		100.00
149048	Duplain, Joseph	29.43			29.43
149551	Dorland, James M	29.30			29.30
149563	Dyer, Spencer J	94.74			94.74
149565	Darbaker, Henry D	96.51			96.51
149644	De Long, William H	187.92			187.92
149001	Drain, Benjamin		52.59		52.59
149002	do	.09	7.41		7.50
150169	Doughty, George W	67.89			67.89
147810	Dutton, Harvey J	72.24			72.24
149768	Drake, Ludlum C	72.58			72.58
150491	Davis, Leonard		100.00		100.00
146083	Dresser, Charles A	82.47			82.47
160546	Dunn, Jabey	60.15			60.15
150546	do	7.50			7.50
148470	David, Elijah B	59.52			59.52
149662	Dodge, Warren F	49.77			49.77
150378	Dickie, Robert B	18.49			18.49
164685	Denee or Denny, Louis (*alias* Lewis Myers)	68.26			68.26
149581	Dalzell, John	156.11			156.11
151080	Dickenson, James	181.91	100.00		281.91
151081	do	10.00			10.00
150406	Dowell, John M	42.25	50.00		92.25
149589	Dryden, Samuel	364.61			364.61
149628	Doyle, Farmer J	.65		50.00	50.65
150173	Douthett, Levi	72.98	75.00	50.00	197.98
150509	Dodge, Miles H	4.63			4.63
148590	Doble, Francis M	173.23			173.23
151122	Dent, George	21.42			21.42
151191	Dutton, Aaron S	77.75			77.75
151915	Dunn, John		90.00		90.00
151916	do		10.00		10.00
147826	Doyle, James M	6.39			6.39
151076	Dolliole, John L	7.81		100.00	107.81
151077	do	10.00			10.00
151155	Dodge, Asaph	485.75			485.75
151201	Day, William B	87.82		50.00	137.82
151574	Dowd, Walter		100.00		100.00
151956	Duttera, George K	61.53			61.53
149586	Downey, Robert C	129.94			129.94
151926	Dryden, Jesse	7.15			7.15
166373	Danver, Hugh	17.51			17.51
150814	Decker, Barney	78.13			78.13
151140	De Wolf, James K	167.12		50.00	217.12
151193	Davis, Jonas R	608.26			608.26
150856	Dunn, Slocum S	1.66			1.66
151975	Dickey, Gilbert A	63.62			63.62
152114	Dodd, Jesse R	48.84			48.84
17888	Dillon, Michael A	4.67			4.67
151524	Dunten, Amos A	57.98	100.00		157.98
151174	Davies, Robert M	354.95			354.95
151896	Decker, Marcus L	18.63	100.00		118.63

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866. (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
150819	Dugan, William H	$830.00			$830.00
150946	Daniel, George W	164.76			164.76
152116	Dodd, Thomas M	25.04			25.04
152126	Dunn, John		$300.00		300.00
151173	Dietrich, Charles A	5.11			5.11
151187	Davis, Lucius	221.76			221.76
151230	Davis, Benjamin F		100.00		100.00
152088	Duer, John O	31.93			31.93
152551	Denny, Imbert H		100.00		100.00
152552	Denny, John B		100.00		100.00
153079	Dodge, Dana D	149.15			149.15
151542	Dorsey, William B	69.96			69.96
152141	Davis, John		100.00		100.00
153432	Dickerson, Samuel J	158.49			158.49
152140	Dunn, William G	18.98			18.98
151020	Dysart, Alexander P	186.69			186.69
154502	Donahoo, John G		79.38		79.38
151905	Duvall, Hiram F	24.66			24.66
153049	Driscoll, John	3.54	200.00		203.54
153444	Durham, George H	152.89			152.89
153767	De Forest, Albert	17.12		$50 00	67.12
152978	Decker, James E	101.22			101.22
152964	Doolittle, Leland L	127.09			127.09
153179	Dunmore, Edward	45.16	80.00		125.16
153180	——do	10.00			10.00
151983	Daunt, William	33.36			33.36
153053	Delaney, Patrick		33.75		33.75
153722	Dunham, Christopher T	36.70			36.70
153784	Dimock, George	17.04	100.00		117.04
154203	Doud, Edmond D	31.56			31.56
153030	Dunn, William H	42.08			42.08
152110	Dilworth, Emmor	86.23			86.23
153456	Dickeson, James B	160.67			160.67
153820	Day, George A	37.76			37.76
154649	Davis, Joseph	5.27			5.27
154833	Donnelly, Hugh	131.27			131.27
168519	Dunn, Thomas B	212.23			212.23
169873	Darling, Genery T	9.39	75.00	50.00	134.39
153063	Dick, Samuel R	9.67			9.67
154559	Deane, Charles H	426.61			426.61
153104	De Lano, William W		100.00	100.00	200.00
154245	Dodd, James E		100.00		100.00
154250	Duncan, Lloyd T	33.86	25.00		58.86
166141	Deaton, Jonathan R	36.36			36.36
154749	Davis, Joseph H	113.78			113.78
155336	Dooms, George		90.00		90.00
155337	——do		10.00		10.00
153177	Durbrow, Washington	69.20			69.20
155172	Dashiell, Virgil W	25.46			25.46
156193	Davis, John A	9.93			9.93
153830	Detrick, John S	55.80			55.80
155772	Dysart, James C		52.69		52.69
156131	Dredden, Isaac Henry	68.48	115.00		183.48
156132	——do	10.00			10.00
154829	Duff, Lemuel W	63.08			63.08
155885	Dedrick, Nelson	18.57			18.57
155997	Drake, Milton L	25.35			25.35
156000	Doyle, John		25.00		25.00
156137	Davis, Burrell (or Burl)		90.00		90.00
156138	——do		10.00		10.00
156755	Davenport, William		90.00		90.00
156756	——do		10.00		10.00
155976	Dale, James W	16.89			16.89
154215	Dempster, Daniel	19.61			19.61
155991	Duffin, Samuel	149.16	135.00		284.16
156331	Davis, William B	80.18			80.18
156672	Dunard, Nicholas		260.00		260.00
152058	Dawson, Byron	11.60			11.60
152057	Deering, George A	62.76			62.76
152053	Dyar, Hiram R	2.20			2.20
156912	Dennis, Elias S	124.95			124.95

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT--Continued.				
144250	Doane, Elisha	$190.91			$190.91
148276	Davidson, Herbert	8.06			8.06
154866	Duey, Theodore R		$8.17		8.17
155183	Dunavan, George H	116.98			116.98
156614	Dempsey, Joseph	24.94			24.94
163623	Dodge, John B			$50.00	50.00
154796	Dustin, Walter		175.00		175.00
156793	Dievies, Samuel W		200.00		200.00
163480	Dorsey, Norris H	60.59			60.59
163636	Dion, Marshall	112.47			112.47
152068	Davis, Francis H	17.67		50.00	67.67
155741	Dennison, Asa		185.00		185.00
163476	Deyo, Amos		100.00		100.00
155586	Dennison, George W		100.00		100.00
163773	Daihl David F	16.20			16.20
163492	Dwyer, Rufus A	175.11			175.11
163796	Darnel, Arthur W	2.55			2.55
156797	Davis, Alexander			50.00	50.00
172227	Dora, Benjamin F	464.59			464.59
165910	Duryea, Benjamin	134.71			134.71
152058	Dawson, Byron	11.60			11.60
163738	Duty, Andrew W	137.49			134.79
163678	Deacon, James	5.23		100.00	105.23
164572	Dunn, Foster	3.12	33.34		36.46
163641	Dailey, James	155.60			155.60
163743	Donnan, John		33.33		33.33
156009	Dodd, Thomas C		115.00		115.00
164266	Davis, Albert W	45.06	100.00		145.06
167394	Dillon, Garrett F	219.94			219.94
164732	Dingman, Wilson S	86.17			86.17
163677	Davison, Smith A	138.70			138.70
164736	Dickason, Alexander R		33.33		33.33
164738	Davis, David		75.00		75.00
164183	David, Jacob	6.90	60.00		66.90
164275	Dennis, Isaac	14.93	100.00		114.93
164587	Dickerson, Jefferson	52.23			52.23
152063	Dimick, Orlando W	97.88			97.88
164788	Dutton, John		75.00		75.00
164283	Doughman, Jessey (or Jessie)		25.00		25.00
163905	Denny, Jeremiah	22.44	300.00		322.44
163906	....do	10.00			10.00
156755	Davenport, William		90.00		90.00
156756	....do		10.00		10.00
165138	De Witt, Peter		291.00		291.00
165139	....do	1.00	9.00		10.00
166011	Dodd, Isaac	17.50			17.50
166012	....do	5.00			5.00
166999	Donovan, Edward	121.54	100.00		221.54
164678	Doggett, James F		200.00		200.00
156019	Dunn, Allan	79.60	195.00		274.60
156928	Disbrow, Charles	25.32			25.32
164704	Dunn, Jeremiah M	77.60			77.60
164757	Daum, George	104.34			104.34
164762	Davis, Harry	776.95			776.95
165115	Dixon, Samuel C	178.40			178.40
171080	Daley, Charles P	68.90			68.90
164582	Duvall, Lamech		100.00		100.00
166052	Dunton, Stephen B	16.13	100.00		116.13
164808	De Long, Dan. J	96.96			96.96
165178	Daniels, Squire B	166.95		50.00	216.95
169883	De Mott, Charles	324.70			324.70
165077	Doughty, J. C	199.50			199.50
165124	Darrah, Levi		100.00		100.00
166021	Dent, George	61.51	150.00		211.51
164737	Dwyer, John	68.42	66.66		135.08
154509	Dees, Geo. W		90.00		90.00
164775	Davis, Edward	6.02	15.00		21.02
172909	Dennis, James	23.70	200.00		223.70
164441	Dunford, Mathew J	222.85			222.85
164431	Dickens, Andrew J		100.00		100.00
165454	Dugan, John D	47.33	75.00	50.00	172.33

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
164627	Davis, Sylvester M	$162.36			$162.36
165859	Duckworth, Wm. A	8.84	$25.00		33.84
165192	Duggan, Andrew W	144.53			144.53
165088	Drew, William	14.52			14.52
169135	Dickerson, Theodore H	111.77	100.00		211.77
156030	De Lay, Jacob B	85.66		$50.00	135.66
165460	Degraff, Frank	8.49			8.49
165892	Deegan, Ross	22.70			22.70
165812	Damson, Moses D	18.72	75.00	50.00	143.72
163661	Davis, Frederick C	43.23			43.23
166222	Dewey, Dewitt C	151.20			151.20
166378	Deems, J. B	25.44			25.44
166420	Deeham. Garrett			50.00	50.00
165089	Day, William T	44.86			44.86
163667	Davis, James T	84.71			84.71
166036	Dickerson, Paul		190.00		190.00
166037	——do		10.00		10.00
155896	Divmel, Lester	182.97			182.97
166379	Dougherty, Eugene	88.59			88.59
166425	Daggett, William H	52.20	15.00		67.20
165995	Doty, Milton H	300.96			300.96
163664	Dodge, William A	249.33			249.33
165090	Davis, Joshua S	27.70	50.00		77.70
156861	Diedman, George W	311.45			311.45
166504	Darrah, George W	30.83			30.83
163665	Dorman, Julius S	204.67			204.67
156747	Davis, John A	305.04			305.04
165164	Drake, Samuel	51.26	100.00		151.26
165165	——do	10.00			10.00
166717	Decker, Oliver G		75.00	100.00	175.00
167211	Davis, George E	587.87			587.87
166005	Desbeck, Alfred		100.00		100.00
166396	Drinker, Francis P	16.04			16.04
167774	Denniston, Aaron J	108.02			108.02
167182	Dale, Judson		100.00		100.00
174376	De Foreest, John H	49.54			49.54
167314	Davis, Alfred J		100.00		100.00
156942	De Hart, William H	21.40			21.40
174098	Davett, Dennis R	46.60		50.00	96.60
165872	Delinger, Henry		100.00		100.00
164644	Depenbrock, Bennett	45.50			45.50
171490	Davidson, Richard	6.57			6.57
171226	——do	.73			.73
168063	Dixon, John	7.38			7.38
168064	——do	.82			.82
174825	De Mott, William	86.40			86.40
167829	De Lancey, James A	36.80			36.80
167830	——do	5.00			5.00
167017	Denis, Arthur	18.30			18.30
167018	——do	5.00			5.00
173446	Davis, John W	35.43	100.00		135.43
174102	Dooley, Patrick	177.87			177.87
166685	Danford, Archibald	84.00			84.00
167227	Dunlap, William W	138.27			138.27
168141	Daniels, Harrison C	7.65			7.65
154204	Dunning, Dyer D	38.72			38.72
165535	Dave, Mark	30.46			30.46
155868	Duggan, Archable (M. or Archibald)		200.00		200.00
168543	Devin, John	95.46	100.00	100.00	295.46
168544	——do	10.00			10.00
167581	Davis, Thomas			50.00	50.00
168159	Darling, Benjamin F	108.04			108.04
168150	Drury, George D		200.00		200.00
167795	Deiker, Henry	32.45			32.45
145245	De Fruville, Frederick		75.00	100.00	175.00
175079	Dingess, Adam	.87	300.00		300.87
167798	Decker, Frederick	195.56			195.56
167796	Davis, John	212.16			212.16
165487	Denneman, Clemens A	112.15	100.00		212.15
169572	Dumphy, William H	126.37			126.37
168353	Duncan, Lawson A	32.05			32.05

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	WAR DEPARTMENT—Continued.				
167393	Dibble, Philer K	$83.66			$83.66
167333	Davis, Henry	4.93	$100.00	$50.00	154.93
167242	Dunn, Francis J	304.17			304.17
170113	Davis, Lewis	3.92	1.08		5.00
170112	....do		21.14		21.14
156938	Danely, Benjamin F	1,146.69			1,146.69
169863	Daniels, James H	42.19	33.34		75.53
163786	Duffee, George W	190.44		50.00	240.44
165038	Davidson, Ray D	60.59			60.59
168151	Donaldson, James	8.13			8.13
170138	Door, January	8.05			8.05
170139	....do	.89			.89
169875	Dickman, Henry W	131.57	100.00		231.57
232844	Davis, James A	60.07	75.00		135.07
170151	Davis, Charles		90.00		90.00
170152	....do		10.00		10.00
169224	Delashmutt, John I	533.73			533.73
168496	Dewees, John B	69.43			69.43
170153	Dickerson, William	62.12	200.00		262.12
170154	....do	10.00			10.00
167201	Donica, Abram	116.17			116.17
170065	DeLancy, John W	66.24			66.24
169400	Dougherty, Francis M	23.62			23.62
169156	Davis, William P	37.73			37.73
170430	Deemer, Andrew P	2.20	25.00		27.20
167391	Dorrell, William S	1.90	33.33		35.23
171113	Donald, Jackson	9.30			9.30
169600	Devens, Elijah I	194.22			194.22
171533	Divine, Dwight	59.65			59.65
169396	Drew, Burton	202.92			202.92
170652	Dickinson, Reynolds H	298.56			298.56
177093	Derr, Charles L		75.00		75.00
171060	Dorton, Azariah	28.70			28.70
171134	Davidson, Thomas B	8.20	25.00		33.20
170661	Dodge, Josiah H	350.74			350.74
170376	Dale, John H		100.00		100.00
133063	Denison, William W.	39.48			39.48
171461	Dinsmore, John B	14.62			14.62
172292	Dunham, Samuel H	10.28	100.00		110.28
171122	Daniels, John	9.06			9.06
171123	....do	1.01			1.01
171116	Davis, Henry	15.67			15.67
171117	....do	1.74			1.74
169410	Daniels, Henry		72.24	50.00	122.24
163025	Decker, Jacob		75.00	100.00	175.00
170415	Dodd, Horace R		100.00		100.00
166070	Day, Mitchell H	276.68			276.68
170639	Dickson, John S		10.00		10.00
171513	Dawson, Robert	26.82		100.00	126.82
170884	Davis, George. (*See* William Black.)				
154252	Dunn, John P	53.23			53.23
171902	Devor, James	40.30	100.00		140.30
172103	Davis, Warren B	29.40			29.40
169247	Duncan, William B	19.99	100.00		119.99
32284	Dunham, William H	131.95	100.00		231.95
176858	Dawson, Edward			40.00	40.00
177052	Donlin, William H	59.14	75.00	100.00	234.14
171166	Druien, Benjamin	178.05			178.05
79137	DeBeque, Wallace A. E	372.94	160.00		532.94
172152	Dunham, James R	19.71			19.71
172893	Dailey, Arthur H	183.98			183.98
171467	Dean, William B	26.98			26.98
171171	Dittman, Augustus	24.33			14.33
172891	Draper, Harvey	25.60			25.60
172585	Doty, William		100.00		100.00
172034	Davis, William H	909.08			909.08
172580	Dennis, Charles P	14.11	100.00		114.11
173444	Daly, John	309.87	100.00		409.87
171484	Delaurn, Antoine	379.72			379.72
166204	Dean, Lewis O	45.10	75.00		120.10
169925	Dubs, Charles F	255.17			255.17

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	WAR DEPARTMENT—Continued.				
168120	Dent, Byron H	$151.34			$151.34
172107	De Smith, Marquis	23.49			23.49
172169	Davis, Josiah	14.66			14.66
172253	Darling, James	34.85			34.85
171869	Doughty, Joseph W	127.50	$25.00		152.50
172840	Davenport, Ivory		9.00		90.00
172841	——do		10.00		10.00
171583	Doyle, James	22.53	75.00	$50.00	147.53
172244	Druf, Frederick		100.00	100.00	200.00
171915	Drury, Patrick	2.56	100.00		102.56
172970	Daisey, Willis	38.00	100.00		138.00
173611	——do	10.00			10.00
166086	Duerr, Jacob	64.13	100.00		164.13
172749	Dietrich, Peter	34.09			34.09
170095	Dudley, Jerry	55.54	100.00		155.54
170096	——do	10.00			10.00
173634	Dickinson, Lee		290.00		290.00
173635	——do		10.00		10.00
172277	Downs, William	204.10			204.10
172070	Dils, John	250.00			250.00
173473	Davis, Rollin W		100.00		100.00
177242	Doolittle, Oliver T	76.55			76.55
138103	Dickinson, George W	9.77			9.77
168140	Dickenson, John R	10.55			10.55
176481	Duff, Edward M	19.82	105.00		124.82
161052	Demby, Josiah H	42.42			42.42
172053	Doubleday, Charles S	354.58			354.58
173652	Dunham, Abner	139.28			139.28
167646	Deuendorf, Henry X	124.57			124.57
167673	Driggs, Lorenzo D	4.06			4.06
173514	Douthit, William H	20.00			20.00
173649	Davis, Chadwick	4.88			4.88
173650	——do	.54			.54
173850	Dunn, Allen		90.77		90.77
174611	——do	.77	9.23		10.00
166569	Danser, James C	14.30			14.30
167058	Davis, Churchwell P	3.90			3.90
173183	Dennis, Edward		110.00		110.00
173616	Dudley, General	9.06			9.06
173617	——do	1.01			1.01
173714	Decker, George	24.85			24.85
172873	De Ronde, Martin J	14.66			14.66
172923	Davidson, Joseph S	174.30	210.00		384.30
173767	Dilts, William H	5.49	100.00		105.49
174249	Duke, Richard		100.00		100.00
174031	Dodge, John	123.79			123.79
173184	Doyle, Dennis	86.35	15.00		101.35
174911	Demar, John F	26.02	100.00		126.02
170087	Dorman, William J	248.70			248.70
171593	Davis, Daniel T	13.80	100.00		113.80
174971	Doty, George W	157.14			157.14
173720	Davis, Greenleaf P	141.72			141.72
174034	Dewey, Timothy	80.96			80.96
146419	Dunlap, Lucas	2.95			2.95
154814	Donnelly, Thomas	3.26			3.26
155675	Davis, Fulton B			50.00	50.00
173793	Deering, Henry	63.05	50.00		113.05
174921	Dorman, James	.45	100.00		100.45
174922	——do	10.00			10.00
169184	Dunning, Andrew	260.26			260.26
165938	Davis, Aaron W	38.84			38.84
173415	Dennis, Edwin B	9.57			9.57
171238	Drake, Charles	.33			.33
165699	——do	2.92			2.92
72889	Duncan, George W	333.90			333.90
173097	Dickinson, Alford H	52.00			52.00
172867	Doten, Edwin W	16.66			16.66
174981	Davis, Amos C	71.75			71.75
173804	Davis, Alonzo E	5.21			5.21
174046	Davis, Thomas. (*See* Thos. C. Murdock.)				
174243	De Voe, Jacob. (*See* Jacob McBride.)				

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
175022	Delay, Reuben	$260.30	$50.00	----------	$310.30
175495	Dale, David	10.02	100.00	----------	110.02
167054	Defreese, Wm. N	3.35	----------	----------	3.35
174385	Dranfield, George	112.66	----------	----------	112.66
174087	Davis, Thomas	----------	----------	$50.00	50.00
173663	Denoon, James F	3.25	----------	----------	3.25
175105	Deiber, Frank	27.30	----------	----------	27.30
168188	Delaney, John	3.09	----------	----------	3.09
174998	Dyer, William	88.36	100.00	100.00	288.36
173659	Dewey, Edward A	----------	100.00	----------	100.00
170495	Dalton, Thomas	3.25	----------	----------	3.25
168904	Dingman, William	4.00	----------	----------	4.00
174091	Dalziel, James	29.14	285.00	----------	314.14
169067	Davis, William	5.42	----------	----------	5.42
166311	Dean, Charles A	69.12	----------	----------	69.12
174830	Donoghue, Patrick	124.42	----------	----------	124.42
165392	Daniel, Abram	5.12	----------	----------	5.12
171250	------do	.57	----------	----------	.57
173127	Dusing, John	379.00	----------	----------	379.00
168189	Dudley, James	7.77	----------	----------	7.77
167057	Divine, William	3.09	----------	----------	3.09
165614	Dolbow, John P	4.50	----------	----------	4.50
173831	Dowell, Nathan	4.54	59.52	----------	64.06
173832	------do	7.50	----------	----------	7.50
173833	Dowell, Thomas	----------	52.04	----------	52.04
173834	------do	----------	7.50	----------	7.50
174176	Dawes, James	3.12	----------	----------	3.12
175052	Dulin, Azor	20.80	50.00	----------	70.80
145788	Edgar, William	116.41	----------	----------	116.41
146720	Ellis, Pliny	32.00	100.00	----------	132.00
145029	Edmiston, Franklin	----------	25.00	----------	25.00
153716	Evans, Alphonso A	16.80	----------	----------	16.80
149366	Evans, Albert	5.14	----------	----------	5.14
147021	Ely, Samuel	111.84	----------	----------	111.84
145065	Elliott, Isaac H	138.00	----------	----------	138.00
154241	Enlow, Andrew J	26.70	----------	----------	26.70
148001	Evans, Samuel	46.78	----------	----------	46.78
147763	Edwards, John M	259.38	----------	50.00	309.38
147728	Eaton, Ethan W	61.37	----------	----------	61 37
146023	Eselstine, William	3.20	150.00	----------	153.20
147349	Elder, John L	149.75	----------	----------	149.75
148432	Edwards, Mortimer C	23.76	----------	----------	23.76
156836	Edgerton, William T	753.54	----------	----------	753.54
156841	Earle, Ethan	82.08	----------	----------	82.08
155747	Ewing, Matthew	76.36	----------	----------	76.36
148445	Edson, Willis	73.72	----------	----------	73.72
149057	Evans, John	----------	200.00	----------	200.00
8705	Edmonds, Felix	92.80	----------	----------	92.80
148435	Erickson, Christian	21.59	----------	----------	21.59
148565	Ensley, William C	90.69	----------	----------	90.69
148909	Edwards, Henderson J	111.74	----------	----------	111.74
148891	Eskridge, Richard I	47.00	155.00	----------	202.00
149118	Ensign, Almon W	----------	100.00	----------	100.00
149075	Edson, Seth	16.13	----------	----------	16.13
149555	Eaves, William T	----------	90.59	----------	90.59
150513	Epps, Pleasant	43.65	155.00	----------	198.65
150514	------do	10.00	----------	----------	10.00
150522	Eagan (or Eggan), Jeremiah	----------	89.35	100.00	189.35
150523	------do	10.00	----------	----------	10.00
148400	Emerson, Daniel M	74.48	----------	----------	74.48
148406	Ellis, Richard D	1.59	----------	----------	1.59
148577	Eicholtz, Samuel H	131.79	----------	----------	131.79
150517	Ennels, Robert	----------	45.00	----------	45.00
150518	------do	----------	5.00	----------	5.00
150375	Eastman, Austin V	43.97	----------	----------	43.97
149755	Eberts, Jacob	----------	200.00	----------	200.00
148579	Egan, Patrick	2.58	----------	----------	2.58
150844	Ellis, John M	339.85	----------	----------	339.85
151562	Ellsworth, Allen	47.71	----------	----------	47.71
151572	Eberhart, Benjamin E	----------	300.00	----------	300.00
151938	Evans, Henry	40.66	100.00	50.00	190.66

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
151939	Evans, Henry	$10.00			$10.00
151010	Eckles, Charles	275.62			275.62
151165	Eldredge, Andrew J		$100.00		100.00
151213	Essick, Charles P	347.20		$50.00	397.20
151889	Emery, Joseph D	419.00			419.00
153031	Ellis, Louis			100.00	100.00
149663	Ellis, James W	39.12			39.12
152997	Elliott, Marcus D	152.24			152.24
142487	Evans, Zachariah	1.30			1.30
152483	Evans, Lewis F	27.85			27.85
147771	Ewing, John K		300.00		300.00
151623	Emery, Edwin	118.46			118.46
152105	Elliott, David B	29.73			29.73
152512	Ewer, John, jr.		100.00	100.00	200.00
153133	Edson, Seth	456.64			456.64
151144	Enos, William E	191.10			191.10
152579	Emery, Perry		200.00		200.00
153725	Ellis, Ephraim J	61.52			61.52
153136	England, Theophilus L	100.08			100.08
152584	Ellis, Thomas J	28.60			28.60
153758	Estes, Otis V		100.00		100.00
154238	Eversole, Daniel L	5.17	100.00		105.17
169892	Evans, Lonzo S	15.16	100.00		115.16
154201	England, Aaron C	2.97			2.97
154661	Elgar, Charles	15.34			15.34
154662	——do	1.70			1.70
154482	Epley, Jonathan A		9.09		9.09
152624	Evans, John		100.00	100.00	200.00
154852	Erskine, James B		220.00		220.00
155027	Engle, Samuel	92.73			92.73
155320	Everly, George W		90.00		90.00
155321	——do		10.00		10.00
153461	Ellis, Thomas R	89.20			89.20
153892	Erbe, Arthur	54.91			54.91
154585	Earnest, Lewis M	823.23			823.23
154621	Evans, Theodore	85.82			85.82
154209	Edings, Charles. (*See* Thos. J. Reynolds.)				
155455	Evans, Chancey M	47.03			47.03
163471	Edwards, Henry. (*See* Henry Tincher.)				
153901	Ewing, Henry A	44.53			44.53
156016	Edwards, Hiram K		78.53		78.53
164884	Eysenbach, Louis	541.13			541.13
155759	Ellwood, Michael. (*See* Helberts M.)				
171534	Elliott, Thomas	9.27			9.27
156862	Early, Edward	211.42			211.42
163635	Evans, Stephen W	20.80			20.80
163719	Edwards, Lewis C	208.90			208.90
156712	Emerson, Nathaniel		100.00		100.00
156611	Edgcomb, Martin	220.40			220.40
156848	Eastburn, Sanford	317.46			317.46
154508	Eaton, Henry J	13.11			13.11
163745	England, David		33.33		33.33
154795	Epke, Henry	21.27	145.00		166.27
164733	Elmore, John	28.90			28.90
155588	Eaton, William N	100.23			100.23
164267	Esaly, John	4.00	240.00		244.00
163823	Emery, Frank	14.97	33.34		48.31
164260	Evans, Zebulon P	15.14			15.14
156768	Eason, George W	20.00	100.00		120.00
156769	——do	10.00			10.00
89206	Everhart, John B			100.00	100.00
164750	Eason, Benjamin	197.58			197.58
165112	Elliot, Thornton J	37.05			37.05
165411	Ellerbeck, William	42.90			42.90
165028	Elder, William H	38.53			38.53
165078	Ethier, Anthony		185.00		185.00
164186	Edwards, Richard	136.65			136.65
165875	Epperson, James Madison		91.08		91.08
165433	Euler, Christ	42.34			42.34
77937	English, Pius A	184.01			184.01
165180	English, Joseph M		40.00		40.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid: Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866. (certified claims), 1891.	Total.
	WAR DEPARTMENT—Continued.				
166050	Edwards, John		$17.54		$17.54
166451	——do		1.95		1.95
166460	Ennels, Alfred J			$45.05	45.05
166461	——do			7.50	7.50
166123	Ezell, Cade		290.00		290.00
166124	——do		10.00		10.00
166673	Eakin, David F	$193.31			193.31
163693	Elliott, Phillip F	107.10			107.10
173736	Edmiston, John	5.20	25.00		30.20
167777	Edwards, John O	37.77			36.77
166672	Eisenhart, Jacob S	262.60			262.60
167862	Elts, Egbert M	28.79	55.00		83.79
167306	Ellis, William E		84.60		84.60
165489	Elliott, Jacob N	20.01			20.01
167328	Ewing, Sam H	95.89			95.89
164444	Edney, John B	58.79	33.33		92.12
169143	Erb, Wm. S. S	51.31			51.31
168404	Easton, Martin	7.76	300.00		307.76
168405	——do	10.00			10.00
169142	Emery, Daniel R	40.89			40.89
170372	Earl, Mortimer C		100.00		100.00
169388	Evans, David J	196.04			196.04
167215	Easton, Mortimer S	13.00	60.00		73.00
170212	Elmore, Geo. B	24.40			24.40
169897	Easley, John R	37.47			37.47
169151	Emrich, George P	89.77			89.77
146360	Edmunds, Charles S	49.20	300.00		349.20
55300	Ellsworth, Samuel H	43.72	75.00	50.00	168.72
170238	Engel, Hugo	14.42			14.42
169405	England, Thomas		66.46		66.46
164471	Eaton, Charles	6.10			6.10
169577	Eggleston, Henry B	120.39			120.39
171539	Eldridge, Milo B	37.79			37.79
113914	Ellis, William H	400.62			400.62
164145½	Elliott, Robert	2.78			2.78
171219	——do	.31			.31
167342	Evans, Zachariah	3.90			3.90
176050	Eisman, Frank. (*See* Frank Iseman.)				
171557	Eaton, Thomas B	73.83			73.83
172302	Easton, Nelson S	.92	100.00		100.92
172057	English, Mathew		10.00		10.00
172851	Eldridge, Simeon N	7.67			7.67
166089	Ephlin, Edward L	25.57			25.57
172029	Edwards, Nathan	106.91			106.91
173100	Evenden, John G	199.80			199.80
171989	Encinias, Luis			100.00	100.00
170073	Ellsworth, Richard D	159.01			159.01
173138	Ency, Abram		200.00		200.00
172214	Eaton, Amos D	3.30	100.00		103.30
173461	Erwin, Leonard	68.30			68.30
164100	Eicke, George	2.60			2.60
164406	Emmick, John I	4.88			4.88
164760	Everett, James	73.07	75.00		148.07
173777	Eylar, Oliver H	22.65			22.65
170687	Elerick, James	516.99	100.00		616.99
173711	Essington, John M	88.26			88.26
174900	Etherton, Jacob		77.50	100.00	177.50
174901	——do		10.00		10.00
166819	Eby, Nathan J	4.06			4.06
141819	Elkin, James R	44.21	100.00	50.00	194.21
173704	Egbert, Horace P	46.18			46.18
174902	Ewing, John		90.00		90.00
174903	——do		10.00		10.00
172110	Ellrich, Charles		200.00		200.00
173447	Emerson, Francis M		40.82		40.82
174037	Eaton, Hamlin F	98.34			98.34
173654	Eaton, Robert F	3.62			3.62
174143	Evers, George M	65.74			65.74
174572	Eckel, Nicholas	170.70			170.70
175136	Evans, Wm. F. F	158.47			158.47
172080	Enright, Martin	172.29	25.00		197.29

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
173528	Ende, Charles	$38.74			$38.74
165792	Edwards, Rudolph	8.94			8.94
175815	Embury, Philip	13.66			13.66
168474	Ehrenfeldt, Christian	3.09			3.09
174387	Elyea, John H	18.69			18.69
166826	Edwards, Andrew	4.20			4.20
165579	Evans, William E	3.90			3.90
163319	Elliott, William	2.82			2.82
142505	Faulkner, Lewis L	142.33			142.33
145787	Frisbee, Joseph	205.40			205.40
145260	Fechet, Edmond G	20.78	$100.00		120.78
147003	Farr, James E	7.34			7.34
146723	Fox, Ogden W	69.18			69.18
146728	Fogle, Abraham	207.86	240.00		447.86
93554	Fuller, Truman K	308.70			308.70
155661	Foster, Milton E	42.56			42.56
155668	Fleming, William	24.26	100.00	$50.00	174.26
155578	Fenton, John B	57.54			57.54
145789	Frelinger, William	67.00	170.00		237.00
147711	Feemster, William J		140.00		140.00
147324	Fox, John		16.66		16.66
146737	Forman, Edwin A	11.29			11.29
147722	Fields, Michael		200.00		200.00
146735	Freeman, Robert L	93.21			93.21
148004	Fulton, William H	30.66			30.66
148369	Fatzer, Solomon	155.14			155.14
148275	Flemming, Michael	10.00			10.00
148494	French, David		190.00		190.00
148495	——do		10.00		10.00
147228	Foster, Edward R	1,074.76			1,074.76
147652	Farrar, Johnson	64.65	62.50		127.15
148514	Foster, Simon S	54.64			54.64
53339	Fowler, Nelson	31.58	260.00		291.58
148388	Fleckhamer (or Flackhammer), Chas., sr.		100.00		100.00
148490	Ford, Charles		68.48	50.00	118.48
148491	——do	3.48	6.52		10.00
148358	Fox, William F	96.67			96.67
148297	French, George W	12.38			12.38
148342	Farris, William J	70.12			70.12
149035	Ford, Benjamin S	354.91			354.91
127780	Fidler, Thomas	32.14		50.00	82.14
35394	Fidler, William H	48.19			48.19
148251	Fox, William W	264.87			264.87
149029	Fields, William	2.03	25.00		27.03
149059	Felts, James M	27.40			27.40
149116	Ferguson, John		100.00		100.00
147803	Forsyth, Francis	204.22			204.22
149030	Foley, Salem		78.96	50.00	128.96
149791	——do		10.00		10.00
149025	Ferguson, Jacob		145.00		145.00
149026	——do		10.00		10.00
148847	Frye, Daniel M	12.83			12.83
148862	Fader, Charles W	16.10			16.10
148345	Freiberg, Ernest	37.74			37.74
148908	Fell, Elwood H	140.84			140.84
150195	Fisher, Thomas T	3.60			3.60
157865	Ford, Elijah	8.69			8.69
149085	French, John F	24.48			24.48
150192	Fielden, William	28.47			28.47
150205	Frasier, William	7.80	100.00	50.00	157.80
149106	Fitch, Atwood	124.23			124.23
149090	Fenton, Patrick A	24.21			24.21
150485	Filley, Lewis J	172.06			172.06
149650	Fluskey, Bela H		74.74		74.74
149624	Fredrich, William	34.10	225.00		259.10
150171	Fisk, George L	230.09			230.09
149105	Frye, William H. H	46.18			46.18
149071	Fuller, Robert F	6.96			6.96
149558	Favors, William F		33.34		33.34
165870	Furman, John	75.72	15.00		90.72
165869	Fulton, Henry		100.00		100.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of elaimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
149654	Fletcher, William C	$41.76			$41.76
150923	Falkner, Samuel		$79.18	$50.00	129.18
151117	Fairbanks, Ami P		100.00		100.00
150183	Ford, Nathaniel			100.00	100.00
150994	Fowler, Hosmer	78.43			78.43
151912	Frazier, Albert	136.68	100.00		236.68
151913	——do	10.00			10.00
148578	Ford, Samuel S	31.84			31.84
150938	Finley, John	.78		50.00	50.78
151992	Fulcher, Erasmus D		160.00		160.00
151156	France, James S	35.37			35.37
151940	Fuqua (or Fugna), Henry		110.00		110.00
151941	——do		10.00		10.00
151203	Froman, Anderson	207.74			207.74
152072	Fee, Charles D	33.32			33.32
151206	Fuller, Charles H	70.95			70.95
151016	Flynn, Bernard	25.77			25.77
151228	Fox, James D	55.45			55.45
152516	Fellows, Albert G	77.41			77.41
152523	Field, Lucius	51.37			51.37
152118	Farris, John B	56.55			56.55
150995	Fitzmaurice, Michael		85.00		85.00
153124	Fairbanks, E. Lonson	225.27			225.27
151537	Fields, John L		200.00		200.00
151581	Finley, William H	153.94			153.94
152546	Fuller, William		94.97		94.97
152143	Fuller, Warren		100.00		100.00
152023	Fairbanks, Joseph		100.00		100.00
152977	Flynn, Dennis E	22.54			22.54
151549	Fisher, William T	59.80			59.80
153802	Fahnestock, Allen L	52.73			52.73
153841	Fripp (alias Singleton), Richard	11.46			11.46
153842	——do	1.27			1.27
152505	Fansler, Benjamin	148.73			148.73
152973	File, Levi M		200.00		200.00
152595	Fitzgerald, Nasa A	1,339.01			1,339.01
149079	Freeman, Henry W	3.96			3.96
153165	Foster, Richard		95.80	100.00	195.80
153166	——do	5.80	4.20		10.00
153729	Finn, Florentine	70.87			70.87
152150	Fischer, Dittmar	259.41		50.00	309.41
153435	Frankfoder, David	81.03			81.03
153450	Fickas, John T	45.56			45.56
154598	French, Peter	18.73			18.73
153823	Flynn, Patrick	274.66			274.66
153743	Foreman, Reason	4.17			4.17
153746	Failey, James	6.97			6.97
153747	Folin, William	11.87			11.87
154328	Fizer, Samuel	47.75			47.75
153070	Fontaine, Juste	65.63			65.63
154242	Ferguson, Levi	20.20	133.33		153.53
155022	Foskett, H. P. (or Porter H)	5.83			5.83
154218	Funke, Otto	91.68			91.68
156420	Flowers, David S		100.00		100.00
153466	Fairbanks, William H	170.60			170.60
153893	Foley, Patrick	146.69			146.69
155432	Foulks, Lafayette	198.28			198.28
164783	Foster, Crispin		200.00		200.00
155723	Finch, James	22.67	100.00		122.67
152030	Fisher, Samuel C	13.91			13.91
155716	Fouts, William L	17.85			17.85
155717	Ferguson, Charles W	28.88			28.88
155186	Foster, Joseph W	59.16			59.16
154845	Fuller, Charles J	92.73			92.73
155448	French, Charles H	24.50			24.50
155342	Fry, Henry	126.07	100.00	100.00	326.07
155343	——do	10.00			10.00
154712	Farr, Henry M	98.95			98.95
155882	Fitts, John W	98.04			98.04
153313	Francis, David	44.98			44.98
155776	Fair, Thomas	44.90			44.90

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
161891	France, George B	$9.23			$9.23
154570	Forbes, George W		$92.60		92.60
155787	Forsyth, Samuel K	212.71			212.71
163053	Florence, Henry	8.27			8.27
152328	——do	.92			.92
164156	Fay, Parker D	81.86			81.86
152055	Felt James W	61.42			61.42
154223	Flynn, Thomas H	58.68			58.68
154862	Feary, Edward W	16.25			16.25
155258	Fields, Wilford		200.00		200.00
156194	Foster, Jonathan	27.09			27.09
156794	Farlow, Thomas R		200.00		200.00
156850	Freeland, Joseph H	7.73			7.73
163630	Flagg, George W	46.26			46.26
161753	Fry, Christian S	46.32	100.00	$100.00	246.32
156682	Fischer, August	120.63			120.63
163828	Furry, Isaac N		75.00		75.00
164657	Fullerton, John		100.00		100.00
156865	Faulkner, Morgan L	263.44			263.44
156864	Faulkner, William S			50.00	50.00
164612	Fontain, Edward W	237.82			237.82
164670	Fuhrmann, Albert	107.61			107.61
164787	Fribley, James J	87.20			87.20
164696	Fell, Timothy		100.00		100.00
164273	Freidiger, Jacob	37.70			37.70
163817	Franklin, John A		75.00	100.00	175.00
156863	Franken, Bartholomew	185.01			185.01
155783	Ferguson, John P	778.72			778.72
163748	Fahnestock, Rolando F		33.33		33.33
164168	Frank, Harrison	11.31			11.31
164731	Fletcher, Jacob P	14.38			14.38
156765	Fort, Richard		190.00		190.00
156766	——do		10.00		10.00
166053	Frost, Jacob		100.00		100.00
163651	Feeley, John (alias Jno. F. Moran)		277.16		277.16
163653	Frost, Leonard		35.00		35.00
165025	Friend, Joseph L	9.85		50.00	59.85
165068	Foote, Andrew N		235.00		235.00
162120	Fields, William	3.67			3.67
152329	——do	.41			.41
164607	Fryer, Richard	412.57	100.00	100.00	612.57
163757	Frink, John S	477.54			477.54
165183	Ferreby, Thomas G	219.04			219.04
164605	Forbis, Harbert K	7.32			7.32
166025	Ford, Solomon	80.72	100.00		180.72
165852	Fleming, Daniel H		100.00		100.00
165191	Flaig, Martin		40.00		40.00
164422	Foriester, William		120.00		120.00
164634	Falls, James W	11.48	50.00		61.48
162342	Feasel, Thomas J		72.66	50.00	122.66
166213	Fenner, A. C	7.96			7.96
165887	Fink, Samuel		100.00		100.00
84318	Forsha, Amor A	66.06			66.06
168515	Foley, Shadrach	290.48			290.48
164342	Forman, George S	30.79			30.79
165917	Farrell, Sidney H	78.83			78.83
164643	Ford, Johnston	32.67			32.67
164725	Forney, Alban W	4.47			4.47
151872	Fisher, Frederick		100.00		100.00
166060	Folk, Daniel D			50.00	50.00
166023	Frazier, Henry	129.65	100.00		229.65
166024	——do	10.00			10.00
166001	Feagan, Peter	11.06			11.06
164174½	Fields, Calvin	77.60			77.60
164175½	——do	7.50			7.50
167255	Flowers, Harry	5.06		100.00	105.06
167256	——do	10.00			10.00
167042	Flemming (or Flourney), Ambrose	13.10	100.00		113.10
167043	——do	10.00			10.00
155416	French, Hiram T	92.40			92.40
167174	Floyd, John Q. A		100.00		100.00

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	WAR DEPARTMENT—Continued.				
166140	Fyffe, James R	$135.30			$135.30
167302	Foster, Lyman B	182.38	$100.00		282.38
166674	Ford, John E	29.27			29.27
167613	Fordham, George E	1,119.98		$50.00	1,169.98
166129	Felix, Joseph	18.00			18.00
166130	do	5.00			5.00
167226	Figg, Joseph B	41.58			41.58
168136	Free, Samuel	27.20			27.20
167590	Forester, Solomon		100.00		100.00
165485	Foster, Joel W		100.00		100.00
168078	Fields, Ned	18.16	100.00		118.16
168079	do	10.00			10.00
168148	Farrington, Noah		200.00		200.00
167833	Fuller, Winter	169.55	100.00	50.00	319.55
167834	do	10.00			10.00
167917	Floyd, John D. W		100.00		100.00
167913	Frambes, Granville A	232.46			232.46
166059	Fish, William W			18.00	18.00
166977	Fox, Richard		100.00		100.00
168157	Freeman, John S	17.14	100.00		117.14
168388	Ford, James H	11.61			11.61
168389	do	1.29			1.29
167627	Fry, Chas. B	39.92			39.92
169212	Foltz, Daniel	287.05			387.05
168168	Fowler, Charles W	145.10	75.00		220.10
169581	French, Ephraim J	99.76			99.76
167388	Fairbrother, George W		135.00		135.00
169578	Flynn, Thomas	14.55			14.55
168791	Franklin, Andrew	37.85	55.55		93.40
175111	Fisher, John R	33.69			33.69
168331	Fitch, Seth W		100.00		100.00
170373	Fish, Samuel A		100.00		100.00
166985	Fisher, Samuel	38.21			38.21
167402	Fuller, Frank G	376.20			376.20
169589	Fishburn Joshua J	45.61			45.61
168370	Foote, James	19.20			19.20
168363	Fellman, Fredrick		7.75		7.75
174343	Fulkerson, Frederick D	1,021.86			1,021.86
167924	Fewlass, Elihu V	84.81			84.81
170161	Forman, Elijah	12.55			12.55
170162	do	1.39			1.39
164650	Ferrier, Samuel T	166.34			166.34
164046	Frymier, John E	42.08	15.00		57.08
167905	Frazer, Daniel M	141.43			141.43
164474	Fay, Marcellus E	3.30			3.30
170232	Fulton, John	59.62	105.00		164.62
169131	Fouts, Richard H	84.54			84.54
170233	Fosdick, Richard I		100.00	100.00	200.00
170436	Flemming, Samuel	11.07	15.00		26.07
170060	Fowles, Adam C	101.99			101.99
169874	Freelan, Hiram E	102.31			102.31
171173	Fowler, William H		74.32		74.32
175162	Flynn, William	75.63			75.63
170605	Ford, Spencer	6.73	300.00		306.73
170606	do	10.00			10.00
171058	Fowler, Asbury	48.15			48.15
169610	Frost, Robert J	479.07			479.07
169161	Farber, Wm. H	30.03			30.03
170411	Flick, William	13.43	100.00		113.43
171451	Ferry, Julian	6.02			6.02
172013	Fellows, Charles E	67.10			67.10
168352	Farmer, John W	254.32		50.00	304.32
169380	Fruit, Samuel T	8.73			8.73
167927	Fitzgerald, Andrew J	4.28			4.28
172011	Fry, Solomon W	105.68			105.68
171268	French, Samuel	107.61	300.00		407.61
171269	do	10.00			10.00
172225	Fiess, Frank M	9.50		50.00	59.50
171154	Ferguson, Wayne	25.96			25.96
171066	Feist, Jacob	78.75			78.75
174577	Francis, John W	52.56			52.56

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
171543	Fitch, David B	$61.43		$50.00	$111.43
171198	Fronrath, John	32.00			32.00
176360	Fogerty, Daniel J	13.01	$160.00		173.01
171108	French, Austin		117.13		117.13
171109	——do		10.00		10.00
168510	Fillman, Frederick		36.00		36.00
172182	Fowler, Nathan	78.80			78.80
172304	Fanning, Edward	50.27			50.27
172819	Freeman, Edward A	66.25			66.25
172820	——do	7.50			7.50
172176	Faunce. Isaac S	121.73			121.73
171555	Foote, John B	68.60		50.00	118.60
171590	Franks, John	78.10			78.10
171146	Frelinger, William	44.66	113.34		158.00
172306	Fagan, Thomas	92.75			92.75
171482	French, George R	68.94			68.94
171164	Foreman, Thomas	21.32			21.32
172894	Fenton, George M	139.40			139.40
166205	Ford, George A	27.06			27.06
173094	Fulton, John	28.50			28.50
171077	Finger, James	179.83	100.00	100.00	379.83
171483	Finnesey, William	38.03	15.00		53.03
172844	Finney, Reuben	13.83	100.00		113.83
172845	——do	10.00			10.00
173380	Ford, Joseph	35.66	100.00		135.66
173381	——do	10.00			10.00
151125	Fisk, John	231.96			231.96
166090	Faris, Benjamin R	106.45			106.45
156018	Ferris. Eddy F	48.57			48.57
172908	Farrar, Urich S	68.57	25.00		93.53
172903	Field, Henry D	104.93			104.99
172071	Frogge, Evan D	26.09			26.09
7803	Floud (or Floyd), Reuben	89.61			89.61
173700	Fink, John	34.04			34.04
173374	Fleming, Lewis (alias North)	120.99	100.00	100.00	320.99
173375	——do	10.00			10.00
164480	Fargo, Charles O		25.00		25.00
163590	Filkins William H	32.00			32.00
173413	Freeland, Frank H	4.09	100.00		104.09
172116	Faldkamp, Ferdinand	38.01			38.01
171997	Firman, Daniel R	108.99			108.99
158033	Furbay, William S	31.69			31.69
172210	Fulton, James E	64.42	15.00		79.42
172097	Forgey, James L	4.06			4.06
173718	Foster, Samuel C	45.03			45.03
174235	Freeman, Cæsar (alias Richardson)	8.94			8.94
172130	Frederich, Henry		200.00		200.00
172128	Frederich, Anton		200.00		200.00
174332	Frazier, Onslow G	146.95	100.00		246.95
174032	Ford, David J	112.07			112.07
174185	Frost, Charles H	94.34			94.34
172592	Farrell, Lawrence	30.88			30.88
172309	Field, Thomas		100.00	100.00	200.00
173166	Fishback, John B	1.21			1.21
173486	Fetters, Jeremiah	37.26			37.26
174036	Fickle, George B	16.89			16.89
170664	Fisher, William B	409.53			409.53
167694	Fleming, Theodore	10.06			10.06
155468	French, Sharon			50.00	50.00
174040	Farrelly, Mathew	112.86	100.00		212.86
174191	Faust, Philip		200.00		200.00
158662	Fowler, Henry H	8.50			8.50
174173	Ferkel, Adam	68.16			68.16
169187	Fyler, Orsamus R	40.51			40.51
174156	Foster, Charles	24.20			24.20
166189	Flynn, Thomas H	94.23			94.23
173188	Flanders, Daniel J	47.78			47.78
174388	Ferguson, William			50.00	50.00
162313	Fritz, Conrad	57.54	75.00		132.54
175089	Fink, James M	109.60			109.60
175051	Ferris, Francis	2.72			2.72

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	WAR DEPARTMENT—Continued.				
171216	Fratcher, Herman	$2.66			$2.66
174834	Failor, Lewis C		$100.00		100.00
174961	Fellows, Augustus W	6.11			6.11
169460	French, Henry	3.25			3.25
162014	Franklin, Jacob	3.82			3.82
171247	do	.42			.42
168745	Fenters (or Fanters), Noah	4.87			4.87
176509	do	.54			.54
173662	Frost, Isaac	4.39			4.39
174942	Fler, John	9.34	135.00		144.34
155252	Fox, David W	48.50			48.50
175062	Fithen, Robert	3.10			3.10
173721	Fry, Chauncey F	2.81			2.81
174380	Frey, Daniel	6.23			6.23
146088	Gifford, William M	170.82			170.82
145261	Grant, Claudius B	49.70			49.70
142206	Gilbert, Joseph	205.36			205.36
147283	Gordon, Tillington. (*See* Littleton Coleman.)				
148014	Gaither, Oswald H		100.00		100.00
146462	Goodman, Moses A	60.40			60.40
146033	Greenleaf, Charles R	4.33			4.33
155902	Grant, Jesse K		210.00		210.00
152653	Giles, John	395.65			395.65
152619	Gale, John F			$100.00	100.00
147214	Gamble, David C	299.85			299.85
147678	Gaines, Richard	10.93	100.00		110.93
147679	do	10.00			10.00
147325	Gaskill, Allen	44.74			44.74
158502	Glennon, Patrick R	17.66	15.00		32.66
146269	Gillispie, George W	146.70			146.70
147030	Glenn, James	61.61			61.61
138074	Grooms, Tarvin C	146.04			146.04
147344	Grossarth, Philip P	4.50		50.00	54.50
147702	Green, Aaron		190.00		190.00
147703	do		10.00		10.00
146895	Gude, Alfred	726.94			726.94
147998	Guyer, Thomas L		100.00		100.00
148312	Galentine, J. S	307.60			307.60
156608	Gleason, W. Wallace	23.75			23.75
148431	Groesbeck, John W	176.61			176.61
146868	Gove, Edward P		175.00		175.00
147794	Gill, C. Judson	46.34			46.34
148485	Gray, Blunt	154.78			154.78
148486	do	10.00			10.00
17815	Gray, Hugh	300.00			300.00
119250	Glover, Amasa S	53.88			53.88
148385	Grant (or Grance), Conrad	39.43	100.00		139.43
156831	Graton, John R	508.94			508.94
156834	Gibbons, William C	158.93			158.93
148557	Gould, John H	121.59			121.59
146903	Grass, James W		75.00	100.00	175.00
148954	Geyer, John		33.34		33.34
149016	Gallier, Battice	20.80	100.00	100.00	220.80
149017	do	10.00			10 00
148958	Granfield, Robert		100.00		100.00
152719	Gilson, Jonas C	4.55			4.55
148905	Goucher, David	97.17			97.17
148907	Green, Henry M			50.00	50.00
148457	Gano, Elisha	93.08			93.08
149119	Goad, Squire A	15.60			15.60
149827	Gray, Van	106.74	100.00	100.00	306.74
149828	do	10.00			10.00
150393	Goodrich, Fred S	88.48			88.48
148007	Gardill, George J	22.47			22.47
150203	Goodman, William K		100.00	50.00	150.00
147824	Guenther, George G	92.90	100.00		192.90
148377	Geyer, Charles	179.17			179.17
149623	Green, William R		100.00		100.00
148906	Green, John T	63.08			63.08
150524	Gilmore, David	20.80	100.00		120.80

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	WAR DEPARTMENT—Continued.				
150525	Gilmore, David	$10.00			$10.00
147823	Glasner, Daniel	124.25			124.25
149620	Goodrich, Morell		$300.00		300.00
150405	Gray, George		100.00		100.00
150488	Gould, Joseph		75.00	$100.00	175.00
149625	Glassey, John		200.00		200.00
149811	Giles, Major	25.98			25.98
149812	——do	5.00			5.00
150363	Gates, Noble N	40.61			40.61
150359	Grosskopff, Edward	133.42			133.42
149578	Gotts, Henry		115.00		115.00
150221	Gordon, John A	234.35	100.00		334.35
150417	Gunn, Oscar N	263.00			263.00
150845	Goodwin, Frank		100.00		100.00
150483	Gibson, Victor		200.00		200.00
149580	Garfield, George	137.27			137.27
150510	Greene, Luther A	24.90			24.90
150852	Greene, Stephen P		479.36		479.36
151000	Grimes, Thomas		100.00		100.00
151873	Goodling, Michael B	5.01			5.01
165866	Greeley, James	9.40	100.00		109.40
149144	Glass, William C	35.19	100.00		135.19
151996	Gibson, Boster	3.30	9.37		12.67
148416	Good, Elbert K	225.83			225.83
150412	Graham, James F	58.05	100.00		158.05
150971	Gregg, Judson H	19.89			19.89
151135	Gormley, John H	164.20			164.20
151974	Gordon, George C	5.54			5.54
152112	Gall, Henry		25.00		25.00
151946	Gales (or Gill), Henry	12.71	100.00		112.71
151947	——do	10.00			10.00
151162	Gulde, Martin. (*See* Joseph Heisel.)				
151015	George, William G	33.00			33.00
151218	Geschwind, Nicholas	140.59	135.00		275.59
165833	Gardner, Joseph	421.38			421.38
152125	Greenwalt, Noah	155.80			155.80
151114	Gessner, Peter	35.00			35.00
149556	Goodykoontz, Hamilton W	76.10			76.10
152184	Gillison, Paris	11.46			11.46
152185	——do	1.27			1.27
150931	Green, George W	83.97	75.00		158.97
150227	Galloway, Jerome B	79.81			79.81
151019	Geeting, John A	20.15			20.15
152120	Ginn, David	39.14			39.14
152142	Garrison, George	7.50	100.00		107.50
156847	Glenny, William M	48.66			48.66
153077	Green, Lewis		100.00		100.00
153074	Ghost, William C	50.97			50.97
151877	Gleason, Julius A	160.23			160.23
151539	Gorman, John		100.00		100.00
165851	Gibson, Hiram H			100.00	100.00
152086	Greer, James W	87.75		50.00	137.75
152605	Gifford, Hillory H	5.06			5.06
152968	Gallagher, John	274.98			274.98
152577	Griffith, John		100.00		100.00
152969	Genet, Henry A	125.50			125.50
153090	Gray, Almon D	125.40			125.40
153756	Goodhue, Harvey L		76.23		76.23
153797	Galleher, William B	66.93	100.00		166.93
152521	George, Plinny M	196.77	100.00		296.77
153025	Gifford, Gideon W	10.98			10.98
153860	Gary, Benjamin		195.00		195.00
153861	——do		10.00		10.00
154318	Gose, Anderson			50.00	50.00
152098	Gift, Robert P	280.80			280.80
153777	Gray, Sanford G	39.79			39.79
152980	Grasse, Frank E	1,173.10			1,173.10
152996	Gregg, Thomas	283.08			283.08
153807	Groninger, Richard W	375.04			375.04
154039	Gillies, Charles F	66.50			66.50
153866	Grey, Scipio A	132.00	200.00		332.00

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	WAR DEPARTMENT—Continued.				
153867	Grey, Scipio A	$10.00			$10.00
153449	Glardon, Peter F	47.14			47.14
151988	Gearhart, Elias M	34.48	$100.00		134.48
154792	Graham, John W	11.70			11.70
167797	Gordon, John	151.63			151.63
163759	Gerould, Beebe	749.16			749.16
154233	Griffith, Cadwalader M	497.38			497.38
154323	Gorin, William F	12.59			12.59
154327	Gillstrap, Francis M	35.38			35.38
154057	Givin, Alexander W	145.86			145.86
154059	Gilchrist, Robert	80.78			80.78
154207	Gearhart, Jacob S	308.80			308.80
154838	Goddard, Henry P	77.69			77.69
154656	Gaspard, Frank			$42.98	42.98
154657	——do			5.00	5.00
154197	Gammill, Samuel F	376.52			376.52
146063	Gotshall, John	54.89			54.89
154200	Grimley, Thomas	132.28			132.28
154217	Greenwood, George W	53.50			53.50
155015	Grey, James E		75.00		75.00
146063	Gottshall, John	54.86			54.89
152487	Gaston, Nathan D		200.00		200.00
154735	Gillette, Philander D	27.58			27.58
155030	Gift, George. (*See* Uriah Helman.)				
155160	Gillespie, David W	114.52			114.52
155331	Green, Charles		191.31		191.31
155332	——do	1.31	8.69		10.00
155712	Green, Samuel	7.15			7.15
154497	Griffith, William L		100.00		100.00
155405	Gigandet, Joseph		100.00		100.00
154219	Gregory, James M	330.37			330.37
155340	George, Sandy	107.85			107.85
155341	——do	10.00			10.00
155460	Grannell, Thomas	6.63			6.63
124258	Gobrey (or Gubrey), Aaron	99.55	300.00		399.55
155462	Gildea, Daniel	21.01			21.01
155680	Gearhart (Gayheart), Harrison		33.34		33.34
152500	Gifford, Jabez F			26.25	26.25
154836	Gilbert, Sylvester G	7.75			7.75
154850	Gendron, John. (*See* Jno. B. Welcome.)				
159924	Gibson, Shade	34.73			34.73
153888	Gillson, William C	118.02			118.02
155237	Gould, William P	822.05			822.05
155568	Gillespie, John	113.08			113.08
156201	Glaze, Henry	37.77			37.77
158623	Groves, George W	5.24			5.24
155786	Grassmyre, William B	46.00			46.00
153464	Galbreath, Milton	41.23			41.23
155324	Gaines, Richard		99.59		99.59
155325	——do	9.59	.41		10.00
156211	Gregg, John W	10.19			10.19
156302	Grayum, John F	57.36			57.36
152050	Grimes, John	93.46			93.46
152041	Gillam, Alvan C	39.78			39.78
149328	Green, John C	127.37	300.00		427.37
155231	Gilliland, William F	159.67			159.67
155654	Gallagher, William		200.00		200.00
155665	Garnett, George H. (*See* Wm. Murphy.)				
155838	Gibson, Mile- H	6.06	75.00	50.00	131.06
156002	Goodell, John A	42.95			42.95
163624	Grant, Joseph W	30.64	10.00		40.64
156616	Gordon, Samuel, jr	45.00			45.00
156722	Grinnell, Henry T	8.66	100.00		108.66
163798	Groves, Charles M	8.61		50.00	58.61
163505	Gordon, George W		80.00		80.00
163727	Gutenstein, Rudolph M	25.22	33.33		58.55
164152	Gray, Frederick A	50.38			50.38
163724	Grins, Gustav	93.49			93.49
164158	Gallaher, Benjamin D	332.47			332.47
163846	Green, Robert		25.00		25.00
156699	Gates, Erastus O	124.27			124.27

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866. (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
155262	Greathouse, David	$100.34			$100.34
171470	Gould, Nathaniel	44.21			44.21
153407	Gallagher, Charles	49.13			49.13
156703	Good, Joseph R	116.68			116.68
156622	Gage, E. Darwin	1.29			1.29
163750	Gascall, Heslip W	9.87	$33.33		43.20
164773	Gregg, John W	32.63		$50.00	82.63
164163	Griswold, John C	156.05			156.05
165101	Gage, Squire L		175.88		175.88
163874	Gordon, Jefferson	394.00	100.00		103.94
163875	do	10.00			10.00
156945	Gunsenhouser, John	39.77			39.77
171567	Garland, W. H		200.00		200.00
164418	Greenfield, Stephen		77.69		77.69
153470	Green, Jeremiah M	58.15			58.15
156022	Gunn, John A		66.66		66.66
156744	Gaskins, James	25.29			25.29
163741	Gove, Nathan		71.70	50.00	121.70
164680	Glaze, Robert M		200.00		200.00
164793	Guy, Harrison	63.45			63.45
165023	Garrett, John M	118.45			118.45
165116	Grier, William N	480.89			480.89
143108	Gentry, John	20.07	77.68		97.75
143109	do	10.00			10.00
162119	Gilmore, Sidney	4.42			4.42
165121	Gardner, James A	118.58			118.58
165122	Grubb, Isaac N	59.63			59.63
164190	Griggs, Ferdinand	128.43			128.43
163752	Grubbs, Henry W	79.87			79.87
169881	Gazley, John	179.34			179.34
165087	Groves, Benjamin B	153.02			153.02
155989	Grayum, William	195.22			195.22
149067	Gunter, Alexander	56.76			56.76
166372	Garrett, Benjamin F	145.14			145.14
170395	Guernsey, Daniel W	380.67			380.67
166374	Garrett, William C	203.12			203.12
165983	Gildersleeve, William H	17.83	100.00		117.83
154337	Gibson, James W		100.00		100.00
166653	Gardner, James N	58.59			58.59
156866	Gray, Frank	62.35			62.35
165904	Guion, Richard L	428.28			428.28
166386	Gass, George S	120.81			120.81
166436	Guptill, Aaron		100.00		100.00
165988	Gregor, Ferdinand	159.82			159.82
167291	Gordon, John	29.89			29.89
165911	Gallagher, John	44.99			44.99
165994	Greenman, John W	181.28			181.28
166445	Gilbert, Wright	10.51			10.51
165058	Goodnight, William J	32.57	75.00		107.57
166017	Griffen, Hardee		19.07		19.07
166018	do	4.07	.93		5.00
166019	Griffin, Turner	3.81	20.00		23.81
166020	do	5.00			5.00
163894	Grant, Abram	44.24			44.24
163895	do	5.00			5.00
166133	Greathouse, James F	334.39			334.39
164609	Goodman, Pleasant		65.27	50.00	115.27
167253	Gaillard, Alexander	11.40			11.40
167254	do	1.26			1.26
167292	Grant, Charles	208.00			208.00
167825	Griffith, Aaron	4.73	200.00		204.73
167826	do	10.00			10.00
167583	Garrett, Mansel	155.98	100.00		255.98
165042	Gearem, Richard		100.00		100.00
168133	Goebel, Augustus		100.00		100.00
167183	Graham, John		100.00		100.00
155752	Glenn, Robert	22.94	100.00		122.94
165049	Glezen, Joseph C	82.00			82.00
167040	Gibbs, Sye	8.04			8.04
167041	do	.89			.89
168076	Granville, Blunt	160.67	100.00		260.67

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
168077	Granville, Blunt	$10.00			$10.00
167033	Gourdine, Cicero		$90.00		90.00
167034	——do		10.00		10.00
174851	Greenleaf, Richard O	220.07			220.07
163692	Goodbrake, Solomon F	188.53			188.53
167031	Gourdine (or Garrdine), Sancho	8.04			8.04
167032	——do	.89			.89
167855	Glass, Robert	39.42			39.42
168535	Gooseberry, Isaac	101.58	85.72		187.30
167603	Gott, Moses P	66.91			66.91
167915	Grove, William	549.50		$50.00	599.50
153404	Green, Simeon		34.81		34.81
171231	——do		5.19		5.19
168334	Gilkey, William T		100.00		100.00
167228	Galvin, Michael	185.29			185.29
175070	Gartlin, Andrew		100.00		100.00
168570	Gallaway, Simon	7.50			7.50
168569	——do	44.50			44.50
168345	Greenlee, Morris		25.00		25.00
155557	Griffin, Harrison C	16.67			16.67
155756	Greenslit, Herbert N	151.22			151.22
167187	Gibbs, James T		100.00		100.00
166162	Grebe, Balzer	223.85			223.85
163704	Gubser, Charles		100.00		100.00
164748	Grafton, Ambrose E	472.92		50.00	522.92
164769	Gilman, James A	19.08			19.08
168160	Gordon, George S	177.68			177.68
174562	Goodale, Joshua C	227.35	35.00		262.35
163695	Gardner, Leander R		100.00		100.00
167792	Groeneneyer, Herman	599.07			599.07
165443	Gilstrap, Marion J	7.41	33.34		40.75
156683	Greenwood, George A	71.66			71.66
168509	Goldsmith, John H	14.83	100.00		114.83
168506	Grimm, Joseph	38.80			38.80
168564	Gates, Thomas	94.83	100.00	100.00	294.83
167374	Goswick, James		300.00		300.00
169215	Grubb, Lewis C	10.36			10.36
163710	Glines, Abial B	9.08			9.08
167803	Graham, James			96.74	96.74
169583	Gephart, Henry	181.87			181.87
163705	Gilbert, Milton L	154.68			154.68
168516	Goodman, Benjamin B		100.00		100.00
166166	Gardner, Benjamin F	249.62			249.62
166176	Getchell, Sebastian S	94.71	25.00		119.71
170213	Godard, Abel	257.80			257.80
168400	Gilbert, David	115.68	260.00		375.68
168401	——do	10.00			10.00
170132	Gordon, Monday	59.66	100.00		159.66
170133	——do	10.00			10.00
166994	Gray, Marcena C. S	445.46			445.46
125275	Gooch, Franklin G	33.34			33.34
167406	Gan, George		33.34		33.34
167403	Glover, Thomas G		100.00		100.00
167358	Grant, Frederick M	10.34			10.34
173124	Goodyear, Edward B	551.68			551.68
169588	Graves, William H	310.01			310.01
170215	Golden, Joseph	370.03			370.03
169604	Goodwin, Fairfield	33.43			33.43
169907	Gray, John	146.10			146.10
166409	Girard, Claudius		115.00		115.00
170437	Gardner, Samuel A	16.25			16.25
170236	Gardner, Charles F	57.12			57.12
169408	Gallagher, William		200.00		200.00
171496	Gaines, William H	286.36	100.00		386.36
171497	——do	10.00			10.00
168805	Greathouse, Frank M	2.47	100.00		102.47
166168	Glenn, Robert A	185.54			185.54
165577	Gunn, John A., jr	2.82			2.82
164080	Goodwin, Jesse A	50.06	30.00		80.06
174115	Gallaghy, Patrick	94.76	100.00		194.76
166067	Gilbert, Edward W	9.88			9.88

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
170405	Gale, Asa C	$60.97			$60.97
167572	Gregory, John M	55.59			55.59
171061	Gann, Jasper L			$30.88	30.88
171183	Green, George B	18.83			18.83
170866	Graves, Lewis D	139.58			139.58
171456	Gritman, Frederick D	38.09	$75.00		113.09
171276	Gordon, Felix		45.00		45.00
171277	——do		5.00		5.00
171266	Gordon, Lawson		190.00		190.00
171267	——do		10.00		10.00
170241	Garnett, Fred E	171.89			171.89
176047	Grover, Adoniram	28.38			28.38
171136	Gregory, Hiram		78.96		78.96
171972	Greenleaf, Moses	119.40			119.40
170878	Gunsallus, Daniel	366.56			366.56
170668	Green, Leander	110.38			110.38
171581	Galluba, Charles A	53.03			53.03
172048	Gustin, Burton K	169.03		50.00	219.03
171287	Gaillard, Israel	11.39			11.39
171288	——do	1.27			1.27
170883	Gerrard, Silas	1.97			1.97
172027	Gentzler, Philip		17.64		17.64
171558	Gilbert, Edwin H		100.00		100.00
172100	Griffith, Byron	26.55			26.55
172226	Gilbert, Seymour	186.91			186.91
170441	Gallagher, Condy	.90		100.00	100.90
172297	Gibson, Charles. (*See* William H. Hoff.)				
174856	Gilbert, Franklin T	357.05			357.05
175165	Gadberry, John A	.43	240.00		240.43
171526	Gordon, William	13.18			13.18
171527	——do	1.46			1.46
172135	Gillespie, W. H	38.16			38.16
174823	Gregg, Elias C	102.64			102.64
172586	Gaston, Forman	141.32			141.32
170675	Griswold, Osmond C	88.97			88.97
172850	Glass, Clinton	49.64	100.00		149.64
173371	——do	10.00			10.00
167233	George, Gilbert J	171.83			171.83
172039	Gelbaugh John	8.34			8.34
172192	Gansz, Lewis	23.99	33.33		57.32
171168	Gardner, Elisha B	18.12			18.12
172742	Graves, Eli	42.46	100.00		142.46
173384	Gilson, Edward	25.18	100.00	50.00	175.18
173385	——do	10.00			10.00
166078	Gray, James A	151.44			151.44
177384	Gash, Henry W	20.66	100.00		120.66
172166	Gould, Marshal		94.02		94.02
171918	Grieshaber, George		100.00		100.00
172252	Gray, Benjamin	441.94			441.94
151998	Gentry, James W	273.18			273.18
172035	Getter, Jacob B	114.88			114.88
172246	Gibbon, Wm. H	148.95			148.95
170058	Gregory, Francis M	33.49			33.49
172602	Giffen, Charles E	199.92			199.92
171926	George, J. Newton		100.00		100.00
172113	Galmiche, Eugene		60.29	50.00	110.29
172065	Gump, Andrew (alias John Gumptz)		200.00		200.00
173145	Growbarger, William J	17.56	100.00		117.56
172746	Gordon, C. H	42.75			42.75
172211	Goodrich, C. Perry	60.83			60.83
173640	Grevenberg, Sona	6.27			6.27
173641	——do	.70			.70
172251	Gill, Nelson G	90.94			94.94
173510	Gaines, Richard	3.38			3.38
172781	Green, Lewis C	207.43			207.43
174017	Gorham, Levi A	49.76	225.00		274.76
173432	Garrett, James H	269.68			269.68
173815	Gantt, Thomas	81.96			81.96
173816	——do	7.50			7.50
171138	Giles, James W	19.07	200.00		219.07

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	WAR DEPARTMENT—Continued.				
174171	Gabler, Alexander	$218.60		$50.00	$268.60
173715	Gunsallus, John	89.29			89.29
165793	Griner, Nicholas	8.94			8.94
173526	Grubb, James W	753.42			753.42
175014	Grim, Samuel	85.05			85.05
174395	Grimm, Louis		$49.00	100.00	149.00
51557	Garrison William W		100.00		100.00
173790	Gotwald, George A	110.53			110.53
154471	Goodwin, George S	163.93			163.93
173159	Gillette, Andrew J	31.77			31.77
174054	Gray, Robert J	72.12			72.12
174383	Gould, Joseph	11.68	15.00		26.68
154798	Geaugue, Lewis	6.69	35.00		41.69
174186	Gaston, William		200.00		200.00
172878	Galucia, Warren B	3.54	100.00		103.54
174547	Gregory, Adley N	95.65			95.65
174335	Grubbs, George W	255.59			255.59
170084	Gutches, Sylvanus M	6.18	210.00		216.18
174637	Green, John		7.64	50.00	57.64
174638	——do		7.50		7.50
174635	Green, Abraham		20.34	50.00	70.34
174636	——do		7.50		7.50
168161	Goodall, Alexander	79.65			79.65
174989	Gilbert, James H	300.50			300.50
174988	Goodrich, Watson	187.87			187.87
172798	Gould, Albert H	126.40			126.40
169189	Grose, William V	259.18			259.18
166820	Garvin, John	4.06			4.06
176014	Gray, Isaac		100.00	100.00	200.00
174819	Gibler, Allen	265.32			265.32
174838	Gore, John		100.00		100.00
173476	Gatchell, Horace		210.00		210.00
174072	Gennea (or Gonnea), George D	20.98			20.98
174117	Greülich (or Greilich), Joseph	1.48	75.00	100.00	176.48
161818	Green, Samuel W	66.29			66.29
162016	Graham, Silas	4.45			4.45
171232	——do	.49			.49
172145	Gibbs, Henry S	46.46			46.46
164392	Gouble, Jacob	21.00			21.00
168749	Gradny, Mark	3.49			3.49
176510	——do	.38			.38
169563	Gum, Jeremiah	2.82			2.82
165604	Gable, Ohio	2.82			2.82
166831	Greathouse, James P	36.00			36.00
169456	Goward, Richard R. (alias Richard Rochester).	89.90			89.90
174160	Goodrich, Charles E	9.39			9.39
174180	Gerrard, Julius Adolph	4.06			4.06
155415	Huxford, William P	68.18			68.18
147294	Hunt, Peter		93.76		93.76
147295	——do	3.76	6.24		10.00
146459	Hoge, Enos, D	31.36			31.36
147319	Hayes, Edwin L	204.44			204.44
154329	Huddleston, Elkanah	555.15			555.15
155693	Harrington, Samuel C	835.12			835.12
146261	Harris, Abraham B	969.34			969.34
146503	Hight, Horatio	16.20			16.20
146880	Henning, William B	68.75			68.75
147009	Harris, William H	88.80	100.00	100.00	288.80
145267	Hodge, James M	743.33			743.33
145785	Hasley, Frederick		200.00		200.00
146262	Hamblin, John	9.44			9.44
153660	Harrison, Charles L	127.33	100.00	50.00	277.33
147995	Hamilton, James C	107.04			107.04
145258	Hutchinson, Frederic S	36.63			36.63
146717	Heath, Jeremiah	9.44			9.44
146874	Hoschett, John	4.44			4.44
145061	Hart, Ambrose Y	66.80			66.80
142502	Holden, William G	93.16			93.16
143867	Harrison, James B	193.77			193.77
83216	Hitchcock, Bethuel	469.04			469.04

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	WAR DEPARTMENT—Continued.				
145773	Hardin, Charles W		$100.00	$50.00	$150.00
145307	Hall, Charles B	$19.24			19.24
155670	Haff, Jacob	37.96			37.96
145274	Haley, James		100.00		100.00
145314	Hines, George W	80.00			80.00
148013	Hart, John A	126.42	100.00		226.42
145269	Howard, Charles A	94.86	100.00		194.86
147019	Howland, Alonzo	15.10			15.10
146149	Herbert, William H	89.02			89.02
148352	Hazard, Ransom Y	295.05			295.05
147687	Hatfield, James G		90.00		90.00
147688	——do		10.00		10.00
142509	Holtzinger, George W	58.84			58.84
147024	Hatch, James H	76.54			76.54
145070	Howard, Lysander C	151.54			151.54
146101	Hunter, John G	207.11			207.11
147331	Himrod, Patten	172.62	60.00		232.62
146889	Hodges, Joseph C	102.40			102.40
146100	Hitchcock, Henderson		100.00		100.00
146747	Hayward, Frank A	48.72			48.72
147759	Hammers, William O	74.66			74.66
156607	Herbert, William	501.75			501.75
146732	Hare, Levi		100.00	100.00	200.00
146030	Hand, John W	154.52			154.52
146745	Hunt, Leonard H	33.61			33.61
146896	Hamersly, William		100.00	100.00	200.00
147029	Hall, George R	37.17			37.17
148391	Hagler, Jacob S	52.70	135.00		187.70
148437	Herdman, James H	4.77			4.77
147767	Hurt, John M	8.42			8.42
147769	Harmond, George W	156.09			156.09
156760	Hitchcock, Frederick L	28.63			28.63
147018	Hehl, Peter	2.53			2.53
146108	Hoy, Robert W	83.55			83.55
147997	Henderson, Richard P	16.97			16.97
148290	Holbrook, George A	12.38			12.38
147726	Hill, John E	99.55			99.55
147775	Heath, George B	13.05			13.05
148258	Hazell, Joshua B	21.54			21.54
148323	Harroun, Joseph E	82.35			82.35
148397	Hedgecock, Willis E	35.10			35.10
148484	Hansley, Joseph		100.00		100.00
148872	Hamilton, William H	108.53			108.53
28937	Hammond, Michael S		100.00		100.00
146504	Hodgdon, William H	45.35			45.35
147014	Holden, Stephen	23.50			23.50
148501	Hines, Jasper		45.00		45.00
148502	——do		5.00		5.00
148503	Hines, Daniel	42.96	50.00		92.96
148504	——do	10.00			10.00
148531	Hunt, Alonzo W	397.07			397.07
146897	Hearne, Beverly A	101.61	200.00		301.61
148478	Hobson, Frank	214.00	300.00		514.00
148479	——do	10.00			10.00
147710	Hamilton, Houston	5.18	100.00		105.18
148471	——do	10.00			10.00
148307	Hayden, George F	12.38			12.38
148559	Hughes, George W	305.45			305.45
148850	Hall, William F	4.60			4.60
146908	Hancock, Thomas J		100.00		100.00
147805	Hollingsworth, Shelby	35.42			35.42
148340	Haughy, John C	91.43	100.00		191.43
147669	Hamilton, Ira		66.67		66.67
146024	Hudson, Carlos W	78.00			78.00
155696	Harris, Ransom L	132.30			132.30
40657	Heffington, James G	22.64			22.64
147670	Hicks, John		77.48	50.00	127.48
148897	Huhn, Henry L		100.00		100.00
149053	Heath, Phillip N	302.31			302.31
148324	Hamilton, William	151.18			151.18
149554	Horn, Thomas B	8.64			8.64

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
149592	Hall, Andrew	$20.25	$75.00	$50.00	$145.25
149027	Howard, Moses		90.00		90.00
149028	——do		10.00		10.00
149080	Hardy, John. (*See* John Sutherland.)				
149649	Hall, Hollis S	750.43			750.43
149095	Hawes, John Q. A	159.60			159.60
149607	Hill, Emmet F	307.53			307.53
147796	Hollis, Joseph	17.15			17.15
147815	Higgins, Edwin L	24.80			24.80
148973	Humphrey, William H	19.83			19.83
164373	Henry, Isaac		16.85		16.85
146263	Halpin, George	814.77			814.77
148459	Hirsch, Augustus	96.19			96.19
148832	Hutter, John	12.38			12.38
148894	Hickman, James	10.72			10.72
149125	Harris, Lewis K	85.60			85.60
149567	Hopkins, Jonathan	44.14			44.14
150471	Hutchinson, Eben	19.89			19.89
150472	Holbrook, William	12.93			12.93
148455	Hodsdon, Nathaniel B	18.87			18.87
149608	Hall, Josiah B	27.39			27.39
148833	Harper, John H	12.38			12.38
150160	Harper, William M	95.33			95.33
148260	Hecox, Herbert H		40.00		40.00
148350	Holland, Benjamin P	80.61			80.61
148873	Hoffman, Valentine	309.58			309.58
149591	Hope, Francis			100.00	100.00
150400	Holbrook, Hiram		100.00		100.00
150481	Hobbs, Charles W	43.30			43.30
149630	Harter, James M		325.00		325.00
149658	Heirs, Thomas J	22.86			22.86
150911	Hazeltine, Joseph	4.10	100.00		104.10
148408	Hudson, Elijah B		200.00		200.00
148462	Horne, Othniel	132.20			132.20
150194	Harrison, Samuel H	77.01			77.00
149611	Herscher, Frederick	17.76			17.76
163660	Hyde, Leo	4.20	100.00		104.20
143866	Hudnall, Charles H		25.00		25.00
149129	Henry, John S	7.57			7.57
149757	Hennings, Charles		76.04		76.04
149123	Hedrick, William O			50.00	50.00
148985	Hartsock, John		100.00		100.00
150358	Holmes, Charles A	100.89			100.89
150409	Hayden, Elijah		100.00		100.00
150834	Henry, Beverly W	10.60			10.60
155590	Hall, Solomon C	861.24			861.24
149108	Hillman, Alphonso	75.20	15.00		90.20
150495	Heald, Alvah	38.42			38.42
149113	Hess, Jacob	455.48			455.48
149629	Hammond, John W	10.26	75.00	100.00	185.26
150224	Henderson, George H	3.54	100.00		103.54
151097	Hill, George W	96.08	100.00	100.00	296.08
151098	——do	10.00			10.00
149785	Heaton, George	90.65			90.65
150371	Helms, Robert W		100.00		100.00
151514	Houts, Samuel B		100.00		100.00
150912	Hendrickson, John	167.71			167.71
150792	Henry (or Brown), William		200.00		200.00
148409	Heritage, John	102.30			102.30
148411	Hinds (or Hines), Irwin	36.20	100.00		136.20
151599	Hatch, Caleb M	20.94			20.94
149575	Hahn, David	2.67			2.67
149670	Hooton, Isaac T		185.00		185.00
150857	Hawley, Nelson J	248.08			248.08
150932	Hall, Ira D	147.70	75.00	50.00	272.70
150934	Hart, Thomas W	46.80	75.00		121.80
151575	Hurlbut, Henry W		100.00		100.00
151934	Hallick (or Halleck), George		90.00		90.00
151935	——do		10.00		10.00
151957	Heltzel, Alfred	44.80			44.80
150219	Holston, William F. H	65.71			65.71

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs. (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
151119	Herriman, Edwin	$239.29			$239.29
151075	Hippolite, Francois	17.81			17.81
148930	Hodge, Justin	199.90			199.90
150818	Harper, Asa M		$100.00		100.00
150940	Horton, John C	363.95			363.95
150976	Hendrick, Benjamin W	171.91			171.91
150816	Hogue, James C	27.48			27.48
151527	Hund, Jacob		33.34		33.34
149147	Hoover, Martin B	92.93			92.93
150389	Harder, Emmott	27.90			27.90
150411	Hunt, John T	387.45			387.45
151162	Heisel (Hausel), Joseph (alias Martin Gulde)		185.00		185.00
151560	Hippins, John		200.00		200.00
151608	Holbrook, William	21.04	100.00		121.04
151610	Hasty, Gilbert		100.00		100.00
151959	Hoffman, George Y	48.35			48.35
167297	Helt, George		100.00		100.00
151994	Howker, Thomas	123.83	33.33		157.16
167300	Holt, Josiah M	34.39	100.00		134.39
151225	Hubbard, George E	19.38			19.38
151226	Higgins, Frank E		100.00		100.00
151894	Hichborn, Henry	85.14			85.14
152123	Hudson, Daniel	4.33	100.00		104.33
149143	Houghton, Augustus E	93.39			93.39
152020	Hemphill, William S		135.00		135.00
152182	Harris, Napoleon	83.79	100.00	$100.00	283.79
152183	——do	10.00			10.00
152190	Hamilton, August	3.94	100.00		103.94
153151	——do	10.00			10.00
152525	Hancock, Joseph	574.64			574.64
153169	Hull, George C		20.00		20.00
153170	——do		5.00		5.00
150970	Hoyt, Charles A	15.53			15.53
151188	Henriques, David	2.43	11.12		13.55
151556	Harrod, James		185.00		185.00
151528	Hargess, John		100.00		100.00
151533	Henkel, George		33.34		33.34
152478	Hatfield, Ale	3.40	250.00		253.40
152592	Harrison, Robert	100.96			100.96
153032	Hawley, Charles C	8.77			8.77
166679	Hastings, James D		100.00		100.00
151906	Holcomb, Bradford F	40.75			40.75
152490	Henderson, James W		100.00		100.00
152494	Hamby, Anderson G			100.00	100.00
152502	Havens, Joel		260.00		260.00
152539	Howard, Austin		28.53		28.53
153007	Hall, Samuel J	191.50	80.00		271.50
153042	Honick (or Hoenicke), Charles		100.00		100.00
94089	Hopkins, John G	45.56			45.56
107611	Helpin, Alexander A	219.48			219.48
152028	Hiatt, Samuel F	534.80			534.80
152499	Hamlin (or Hamblen), Lincoln A	132.51			132.51
54118	Howry, Alexander		33.34		33.34
151536	Hill, Eben M	105.92			105.92
151543	Hicks, George C	25.56	100.00		125.56
153754	Hibbard, John B		100.00		100.00
148427	Hobbs, Alexander	4.50			4.50
153138	Hazley, James	86.69			86.69
151515	Hoalcrofft, Thomas R	157.26			157.26
153040	Hutt, George W	41.66			41.66
150980	Howard, Shephard L	40.51			40.51
153843	Hare, Wash. (*See* Geo. W. O'Hare.)				
154034	Hawk, Henry	79.63			79.63
151902	Harkness, Alexander W	14.36			14.36
151024	Hewitt, Thomas L	39.51			39.51
152531	Howe, Rufus	203.69			203.69
18359	Hotaling, Dighton W		100.00		100.00
167327	Harris, Jere J	140.23			140.23
151541	Hildabrand, C. M		33.33		33.33
153045	Haas, Samuel P		200.00		200.00

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	WAR DEPARTMENT—Continued.				
153837	Higginbotham (or Higgenbottom), Thomas.	$13.64			$13.64
153838	——do	1.52			1.52
153873	House, Thomas J			$100.00	100.00
151544	Hedge, Harrison	27.06			27.06
153022	Hathaway, Albert L	39.97			39.97
153718	Hershey, Oliver P	43.25			43.25
152588	Hays, Charles C	102.10			102.10
153768	Hersey, Albion	97.31			97.31
157845	Henderson, John G	10.24			10.24
152999	Holmes, George L	35.78			35.78
151227	Hall, William D		$100.00		100.00
152998	Hyzer, William W	149.23			149.23
153016	Henry, Munson P	86.28			86.28
153859	Hughes, Robert		136.60		136.60
154193	Heck, John W		260.00		260.00
154311	Harden, George W	87.83	75.00		162.83
154591	Hubbell (or Hubble), Silas S	38.77			38.77
153775	Hendry, Edwin B	251.29			251.29
154232	Hoover, Jesse B	47.70			47.70
153814	Hartline, Benjamin F	31.44			31.44
154474	Hunt, Isaac L	168.10			168.10
154325	Hunsaker, John C	47.23			47.23
153774	Holbrook, Samuel H	117.18			117.18
154205	Hakes, Harrison	111.56			111.56
154562	Hites, David		200.00		200.00
154641	Hazlerigg, Markham		90.00		90.00
154642	——do		10.00		10.00
153748	Hill, Josiah	6.97			6.97
153749	Hebb, Jacob	6.97			6.97
152602	Howard, David A		100.00		100.00
153881	Hartley, John W	83.80			83.80
155002	Hall, Jeremiah		100.00		100.00
154800	Hannah, William H	43.21	100.00		143.21
154247	Hughes, John B	7.04	245.00		252.04
154347	Hunter, Keenis P	80.02			80.02
155397	Hill, James M	385.50			385.50
153451	Harter, Adolph	226.95			226.95
154070	Hopkins, David C		100.00		100.00
155235	Hall, Lewis	52.00			52.00
162423	Happ, Casper		75.00		75.00
152620	Hull, William		100.00	100.00	200.00
154569	Horney, Paris	35.23			35.23
154666	Higgins, Solomon	5.70	145.00		150.70
154667	——do		10.00		10.00
154670	Hamilton, John	7.06	100.00		107.06
155311	——do	10.00			10.00
155004	Henninger, Jonathan	73.33			73.33
155029	Heston, David	23.46			23.46
155030	Helman, Uriah (alias George Gift)	93.21			93.21
164663	Hindman, John	36.40			36.40
155393	Heaton, Henry W	119.00			119.00
154629	Haines, Jacob L	215.23			215.23
154484	Heath, David M	256.06			256.06
154716	Hope, David C	83.98			83.98
155175	Hornback, Robert	374.68			374.68
155151	Herrold, William M	183.50			183.56
155334	Houston, Thomas	3.86	300.00		303.80
155335	——do	10.00			10.04
155678	Hensley, Solomon		33.34		33.30
155722	Harloff, George W		100.00	100.00	200.00
147742	Huddleston, David F	48.80			48.80
155559	Hartsock, Henry H	40.51			40.51
154468	Harms, Fritz		112.43		112.43
158046	Hester, Newton H	54.37			54.37
153135	Harris, William H	112.00			112.00
156114	Hampton, Wade	13.64			13.64
156115	——do	1.52			1.52
169136	Huber, Henry	186.75			186.75
155422	Heimer, Francis	29.40			29.40
155769	Hauck, John A	559.65		50.00	609.65

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	WAR DEPARTMENT—Continued.				
155770	Himmelreich, Samuel H	$190.21			$190.21
156751	Harrison, Henry			$45.00	45.00
156752	——do			5.00	5.00
154741	Harrison. William H	13.00		100.00	113.00
155247	Huckey, Albert C	61.49			61.49
154263	Horton, Augustus J	61.40			61.40
155424	Hathaway, Charles M	148.30			148.30
155562	Hack, Henry C	3.79	$100.00		103.79
155719	Harper, Seaton	9.07	100.00		109.07
156196	Holding, Richard	142.93			142.93
156282	Humphrey, Joseph	78.47			78.47
156145	Harrison, Panelton (or Pendleton Harrison	18.24			18.24
156146	——do	5.00			5.00
154834	Hartwell, Cephas L		100.00		100.00
155430	Hill, Wallace	966.32			966.32
155888	Harbison, Robert	19.60			19.60
149657	Hicks, Phil N	121.00			121.00
155871	Holden, Clifford W	55.58			55.58
156595	Huxford, William P	14.00			14.00
162859	Hale, John W		100.00		100.00
154713	Huff, William J	32.67			32.67
163794	Hardman, George H	221.28			221.28
153400	Haney, John		112.50		112.50
155759	Helbert (alias Elwood), Michael		300.00		300.00
152070	Hall, Josiah	30.11			30.11
152061	Howard, Edward B	71.41			71.41
152987	Healy, Thomas	37.95			37.95
154326	Hicks, Daniel A		154.32		154.32
155767	Hersh, Zephaniah E	143.58			143.58
155786	Henry, John		33.53	50.00	83.53
156205	Hearn, Benjamin H	430.37			430.37
156299	Howe, Henry S	167.67			167.67
156711	Hemenway, Lucien	250.66			250.66
169169	Hodge, Leander E	122.79			122.79
155159	Harrison, Isham	151.03			151.03
155333	Hester, Alfred	10.65	20.00		30.65
156627	Hooghkirk, Elias	95.25			95.25
163800	Hill, Jonathan		180.00		180.00
155403	Hayes, Eugene F	44.19			44.19
163496	Harman, Joseph L	40.18			40.18
163489	Huffman, Oliver P	40.11			40.11
162241	Hugunin, George	105.07			105.07
155753	Herring, John H	184.22			184.22
155773	Haus, Chas. E	68.77			68.77
156988	Higgins, Samuel C		100.00	100.00	200.00
163756	Hughes, John H	11.79			11.79
163487	Hanna, James N	125.02			125.02
155410	Hallowell, Joseph	13.65	37.50		51.15
164157	Hamilton, Charles	133.74			133.74
149560	Howard, Laroy	81.84		50.00	131.84
163731	Hendry, Marian	1.61	33.34		34.95
163754	Hane, David	60.44			60.44
156692	Hudson, Daniel R	66.70			66.70
171854	Hall, James S	147.46			147.46
153062	Hurd, Tyrus I	66.15			66.15
156295	Hall, Samuel J	13.84			13.84
164284	Harrison, John	55.05			55.05
164659	Henry, William Clay	13.74			13.74
167865	Hayden, Henry W	54.07			54.07
164279	Harlan, Enoch		100.00		100.00
164585	Hardin, Elias		100.00	50.00	150.00
165055	Hawley, Ashbel D		200.00		200.00
163858	Hood, Samuel	45.17	60.00		105.17
156825	Huffman, Aaron		100.00		100.00
156820	Hill, Roswell S	647.73			647.73
164589	Hood, James K. P	54.16	100.00		154.19
163869	Harkey, William J	130.39	25.00		155.39
156870	Holt, Magnus L	171.38			171.38
164578	Harmon, Geo. W	502.98			502.98
163643	Hood, Elbridge G	16.09			16.09

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	WAR DEPARTMENT—Continued.				
164660	Howell, Benjamin R	$389.20			$389.20
163857	Heavner, Jacob W	5.13			5.13
163780	Harkness, Thomas C	147.89			147.89
156869	Hubbard, William		$97.41		97.41
154825	Hill, Nathan S	33.27			33.27
163816	Hatfield, John L	272.68			272.68
164166	Hart, Frank B	27.77			26.77
164257	Haskell, Phineas B	9.54			9.54
165098	Horton, Daniel T		200.00		200.00
17870	Hood, Julia	15.60			15.60
156133	Hampton, Ephriam	13.66			13.66
156134	——do	1.52			1.52
128893	Harris, Sam. (*See* Samuel Brackman.)				
164217	Hunt, Thomas	58.93			58.93
168092	Hinds, Solomon		125.00		125.00
155732	Hastings, Frederick	24.63		$50.00	74.63
156828	Hays, George W	67.32			67.32
163654	Hyde, George H	47.56			47.56
164213	Heath, James S	126.18		100.00	226.18
164421	Hiatt, William H	59.80			59.80
164656	Hay, William	237.87			237.87
164702	Hereld, Amos J		100.00		100.00
164745	Hose, Jacob	89.13			89.13
164799	Hosford, Albert W	96.22			96.22
165021	Harlan, George O		75.00	100.00	175.00
165022	Harris, James A	6.79			6.79
165177	Hord, Jared M	56.79			56.79
165456	Hughes, Matthew M	133.31			133.31
163831	Holden, Archibald J	59.22	100.00		159.22
170409	Hansel, Frank		66.38	50.00	116.38
164184	Hill, Hugh		75.00	100.00	175.00
164278	Hamilton, John W	3.54			3.54
166687	Hussey, Joseph C	40.65			40.65
172582	Haring, Charles B	117.48			117.48
165027	Hungate, A. J	56.92			56.92
156750	Hallahan, John	16.13		100.00	116.13
165861	Hulvey, Guy H		200.00		200.00
165973	Hefflefinger, William R	18.77			18.77
165125	Hayes, William	108.43			108.43
165103	Hagens, James	79.60			79.60
159516	Harper, David	63.24			63.24
164715	Hymers, Brunton	264.44	100.00		364.44
166225	Houston, Archie	62.31			62.31
156931	Hollis, Ephraim J	38.95			38.95
155867	Hood, John H	6.94	200.00		206.94
166376	Hackett, Horatio B	8.61			8.61
165824	Hudson, Joseph W	80.60	100.00		180.60
164577	Herd, George M	104.78	100.00	50.00	254.78
164768	Hinson, Giles	1.17			1.17
165856	Hastings, Loren W	35.69			35.69
165877	Hartman, Johnson		100.00		100.00
165459	Hodsden, Stephen P	7.31			7.31
164719	Hickey, James T	24.37			24.37
165130	Hammann, Edward	92.12			92.12
165837	Hall, Harmon	27.61	75.00	50.00	152.61
165829	Harwood, Barney M	54.45			54.45
165445	Herrick, Lyman	37.58			37.58
166693	Hodges, George S	22.22			22.22
166432	Howard, Hiram	50.09			50.09
165908	Hall, Walter T	290.69	135.00		425.69
165468	Hawkins, Levi	120.64			120.64
165991	Hall, Orville A		100.00		100.00
163870	Horner, Amos	11.16	75.00		86.16
171059	Hays, Joseph M		153.20		153.20
165915	Hunter, James	63.20			63.20
166389	Heath, George W		100.00		100.00
166703	Horton, Erastus J	43.63			43.63
163805	Hare, Silas W	186.81			186.81
165914	Harker, Wm. G		25.00		25.00
166443	Hewett, Stephen P	37.42	160.00		197.42
167276	Hardin, Benjamin		297.50		297.50

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
167277	Hardin, Benjamin	$7.50	$2.50		$10.00
156771	Hamilton, Sandy	22.80	100.00		122.80
156772	——do	10.00			10.00
166106	Hogan, George	24.43			24.43
166107	——do	5.00			5.00
166120	Howard, Giles		190.00		190.00
166121	——do		10.00		10.00
166234	Heskett, Benjamin F	94.27			94.27
166694	House, Frederick A	41.66			41.66
166505	Hance, Sylvanus B	96.54			96.54
155244	Hutchison, Jeremiah T	100.16			100.16
165478	Hemmick, David R	78.80			78.80
167181	Hotaling, Charles		100.00		100.00
166148	Handbury, John D	21.76			21.76
165477	Hamilton, James H	21.42			21.42
155177	Hedges, Jesse F	61.59			61.59
156143	Henry, Zachariah	2.27	90.00		92.27
156144	——do		10.00		10.00
166986	Harrell, Elias	29.20			29.20
165997	Holmes. (*See* W. H. Merritt.)				
167772	Hodges, George H	110.38	100.00		210.38
165444	Hertzler, John (or Jacob)	99.23			99.23
167587	Holman, Joseph A	24.10			24.10
167863	Harris, Samuel F	38.93			38.93
167279	Harrison, George	5.40			5.40
167280	——do	.60			.60
8923	Hood, James T		100.00		100.00
167855	Hodge, Charles		200.00		200.00
166991	Hatch, Hiram H	10.82			10.82
166987	Hollis, John J	129.48			129.48
163694	Head, George H. L	39.70			39.70
166405	Hazlett, George J			$100.00	100.00
166211	Hisey, David E	37.92			37.92
91192	Hamersly, James B	287.08			287.08
166671	Holbrook, Joseph M	8.39			8.39
166684	Himmon, George R		100.00		100.00
168137	Houghton, Moses B	116.80			116.80
167891	Hinzey, David W	49.92			49.92
167859	Hughes, Hugh	95.25			95.25
155886	Harris, James R		135.00		135.00
155173	Hitt, William R	304.89			304.89
167839	Hicks, Lanson B	102.64	100.00		202.64
167176	Holt, Peter	25.02			25.02
164667	Hamilton, Vilman S		100.00		100.00
165483	Hill, Phillip	31.94			31.94
167177	Harpole, John A	14.67	75.00		89.67
168142	Henry, Stephen	96.34			96.34
166998	Haggett, Frank E	22.78			22.78
167303	Hedges, James H	64.14			64.14
165475	Hills, David A	146.49			146.49
166441	Hees, John W	7.54			7.54
163809	Holland, Edward		200.00		200.00
167596	Harney, Ben M	109.03			109.03
166656	Haver, John	756.13			756.13
167831	Haywood, Dago	135.83			135.83
167832	——do	10.00			10.00
167173	Hill, Benjamin O	12.00	260.00		272.00
167914	Hitchens, Ezekiel	161.48			161.48
166718	Hover, Uriah	115.73	50.00		165.73
168335	Hankins, James	33.31			33.31
167329	Hays, E. Z	27.51			27.51
168333	Huling, Moses	31.20			31.20
156821	Heck, Joseph F		100.00		100.00
167780	Hamlin, Solomon G	108.83			108.83
168099	Honnold, John W	150.90			150.90
167326	Hostetter, Augustus G		100.00		100.00
167222	Hall, Hiram W	78.17			78.17
148405	Howard, John	65.34			65.34
156277	Hamlin, Patrick H	4.80	100.00	50.00	154.80
166403	Herr, Samuel K			50.00	50.00
163702	Harris, Samuel T	22.01			22.01

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified (claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
167872	Harris, Alonzo		$30.00		$30.00
167827	Henry, James	$3.00	100.00		103.00
167828	——do	10.00			10.00
167008	Hayes, Homer		100.00		100.00
168381	Hooks, John E	300.00			300.00
167598	Hardin, Thomas J	830.49			830.49
167193	Horton, George W	133.25			133.25
166721	Hodges, Russel		47.48	$50.00	97.48
167318	Hill, George O		100.00		100.00
168501	Head, James D	93.03		50.00	143.03
174020	Hamilton, Thomas W	70.98	65.00		135.98
174019	Hamilton, Albert	35.67	65.00		100.67
169373	Halley, Branson	241.20		50.00	291.20
168782	Henry, James R	69.86	50.00		119.86
167207	Hendricks, Thomas J		210.00		210.00
166972	Hitchen, William	108.32			108.32
168146	Hubbard, George	12.61			12.61
165415	Hutchison, James W	331.49			331.49
169144	Hawn, Philip		100.00		100.00
169363	Houston, John		59.77	100.00	139.77
169364	——do		10.00		10.00
167238	Hickman, William W	74.95	100.00		174.95
168783	Haddon, Jesse	3.70	100.00		103.70
166167	Hatch, Stedman	12.59			12.59
168565	Halt, Henry	181.05	100.00	100.00	381.05
168566	——do	10.00			10.00
175067	Howard, Henry A	106.75			106.75
167353	Hathaway, Sylvanus P	107.59			107.59
167340	Hatch, Frank T	11.80			11.80
167335	Hilton, Warren S	51.66			51.66
163708	Haley, Henry B	197.07			197.07
167006	Hart, David	164.83			164.83
169361	Hibler, James	39.90	100.00	100.00	239.90
169362	——do	10.00			10.00
169389	Hyde, Joel W	41.39			41.39
168792	Holliday, Vinton G	192.02			192.02
169391	Hitchcock, Daniel	443.63			443.63
167818	Harris, Samuel	34.80			34.80
167819	——do	5.00			5.00
169221	Hawk, William	29.20			29.20
169901	Hand, Peter	35.00			35.00
170145	Halmon, James		97.03		97.03
170146	——do	7.03	2.97		10.00
168116	Harland, James M	67.66			67.66
168528	Hack, William E		45.00		45.00
168522	Hassler, John	30.06	100.00		130.06
168799	Hudson, James D	101.11	20.00		121.11
168367	Haight, Jacob T	93.53			93.53
170214	Hills, Norman	606.40			606.40
170120	Hemphill (alias Whitaker), Henry	42.43	100.00		142.43
170121	——do	10.00			10.00
167404	Holliday, Joseph	63.87			63.87
169868	Hahn, Allen W	35.09			35.09
167361	Horne, John W	26.00			26.00
170147	Hobson, Henry		90.00		90.00
170148	——do		10.00		10.00
174669	Hunley, Archibald	475.71	100.00	100.00	675.71
167247	Hartwell, Alexander H	28.07			28.07
170386	Horstmann, Aug	21.24			21.24
169232	Hill, John F	447.82			447.82
163736	Hall, Martin (V. B.)	18.63			18.63
170230	Harrington, Edwin	68.76			68.76
170598	Harmon, George		90.00		90.00
170599	——do		10.00		10.00
170613	Heydon, Ephraim W	15.15			15.15
170853	Hamm, John	487.16			487.16
170425	Humphrey, James Y	91.59			91.59
170235	Hamill, Robert		100.00		100.00
169882	Hatch, Charles H	58.00			58.00
166175	Hupp, George C	42.43			42.43
169395	Havard, Leopold A. F	15.14			15.14

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
169914	Hitchcock, William H	$131.73			$131.73
167202	Hand, David	27.00			27.00
166730	Heth, Levi		$140.00		140.00
170424	Hause, Jacob	116.30	15.00		131.30
169160	Howe, Charles H	79.06			79.06
169888	Hamilton, Charles H	46.83			46.83
162516	Holenbeck, Andrew S	67.61			67.61
170856	Hatfield, Arthur A	5.62	200.00		205.62
164814	Horton, Lewis	4.13			4.13
164211	Hoyer, Daniel			$50.00	50.00
171053	Hawkins, Benjamin F	7.15	75.00	50.00	132.15
167930	Heser, Frederick	151.95			151.95
171055	Hix, William Fenton	90.28	66.66		156.94
168119	Hobson, James M	137.66			137.66
162620	Harris, Daniel	4.63			4.63
170638	Holmes, Allen E	12.52			12.52
169166	Hahn, Martin L	10.38			10.38
170858	Haynes, Orlando W	8.38	30.00		38.38
168350	Humphrey, George R	58.10			58.10
171571	Hepburn, Hawley S	80.84			80.84
166068	Hyatt, William	47.51			47.51
170444	Hodge, Patrick F	284.87			284.87
170630	Holley, Chipman A	58.88			58.88
170247	Head, Jonathan E	85.81		50.00	135.81
172095	Heck, Philip		33.34		33.34
171279	Hart, Elijah	.12	100.10		100.12
171280	——do	10.00			10.00
169880	Hill, Cornelius F	148.23	55.00		203.23
166668	Henderson, Daniel W	38.96			38.96
170217	Hoya, Adelbert	113.25			113.25
170642	Heller, Martin W		100.00		100.00
166075	Hungate, Geo. W	57.79			57.79
171140	Hurt, Joseph	223.71			223.71
170427	Horn, John D	148.21			148.21
171067	Hayes, Melvin	24.79			24.79
171062	Hodges, Elijah J	242.00			242.00
171064	Holloway, Joseph F	94.64			94.64
171063	Henry, James N	353.15	100.00	100.00	553.15
171161	Hughes, John C		31.64		31.64
171194	Hancock, Oscar	54.46			54.46
169929	Hough, John	330.23	100.00		430.23
171580	Hyde, Joseph	115.30			115.30
171975	Huggins, Eli L	30.27			30.27
174535	Hill, Joseph C	32.00	100.00		132.00
166184	Hart, Andrew J	13.00	100.00		113.00
172179	Hubbard, Charles E	181.63	100.00		281.63
171159	Hamer, Reuben			14.48	14.48
170669	Holmes, David N	28.64			28.64
171196	Howe, Clarence M	77.36			77.36
171979	Howard, John R	73.81			73.81
172018	Horner, Charles M	115.20	120.00		235.20
171073	Hutsell, George W	33.63			33.63
172297	Hoff, William H. (alias Chas. Gibson)	54.96	100.00		154.96
166083	Howell, James T	59.13			59.13
172021	Huff, George		100.00		100.00
166201	Hall, Frank P	523.96	33.33		557.29
171072	Harmon, Jacob L	43.33			43.33
171935	Hodges, Sampson	31.63	300.00		331.63
171936	——do	10.00			10.00
172572	Hill, Samuel G	54.63			54.63
166084	Helmick, John M	14.10			14.10
171908	Hale, Jonas	117.14			117.14
170679	Hill, Levi	257.42			257.42
171528	Holt, Moses	13.62			13.62
171529	——do	1.51			1.51
171954	Hall, Alfred	6.94			6.94
171955	——do	.77			.77
171988	Holcomb, Sylvander B	128.72			128.72
171589	Harrison, Enoch	.82		50.00	50.82
171592	Haight, Charles	55.26	100.00		155.26
172344	Hale, Henry	241.57			241.57

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	WAR DEPARTMENT—Continued.				
172345	Hale, Henry	$10.00			$10.00
171531	Hollowell, Joseph	13.65	$37.50		51.15
171544	Henry, Jas. (*See* Jas. H. Markey.)				
176417	Hurst, Joseph H	151.94			151.94
173093	Hutson, Benjamin P		100.00		100.00
171987	Hagans, Edwin B	195.58			195.58
166087	Hess, Levi M	86.07			86.07
172947	Hansberry, Mariman (or Campbell)	17.55			17.55
172948	do	1.95			1.95
171865	Heald, Benjamin F	76.88			76.88
172937	Hughes, Jack		292.49		292.49
172938	do	2.49	7.51		10.00
170079	Harrington, Ransom	112.59			112.59
172581	Hogan, Michael		17.05		17.05
172772	Humphrey, Charles E	205.37			205.37
167175	Hicks, Thomas	378.77			378.77
171576	Hitchcock, Charles A	12.99			12.99
172059	Hahan, Samuel	198.30			198.30
170682	Hallbeck, Paul T	111.70			111.70
172061	Harris, William M	30.33	100.00		130.33
172354	Huff, George		90.00		90.00
172355	do		10.00		10.00
173402	Herrin, Peter		190.00		190.00
173403	do		10.00		10.00
171478	Hill, Charles H	111.02			111.02
171604	Hugumin, Chester M	2.09	100.00		102.09
172305	Hartford, Henry	59.77			59.77
167410	Harper, John J	280.06	100.00		380.06
172598	Hare, Thomas W	129.61			129.61
172941	Hudnell, James	37.16	200.00		237.16
172942	do	10.00			10.00
171176	Hammond, John R	41.47			41.47
172307	Hurley, Patrick	49.84	100.00	$50.00	199.84
172262	Hudson, Joseph	390.42			390.42
156902	Harn, William H	68.03			68.03
170674	Hart, John M	71.07			71.07
171598	Hawley, Frank W	10.96			10.96
169870	Hoaglin, Leroy	183.20			183.20
171925	Holley, William	15.49			15.49
156210	Hetfield, Adam S	199.56			199.56
177243	Hubbell, William S	39.07			39.07
177330	Hager, James W	4.92	200.00		204.92
173134	Hughes, Isaac D	219.12			219.12
173110	Howland, Horace N	15.30			15.30
172111	Hoffman, Peter	34.10	200.00		234.10
167636	Hobart, Martin C	38.42	100.00		138.42
171995	Harden, Abraham	64.97	75.00	100.00	239.97
168127	Hopper, Barney	197.60	210.00		407.60
172609	Hill, William E	1.84	100.00		101.84
167640	Hubbard, James H	280.34			280.34
170689	Hobbs, George W	117.19			117.19
170685	Harford, John	604.10			604.10
171874	Hay, John S	44.88			44.88
173701	Hatfield, Theodore	52.16			52.16
173738	Hopkins, Charles W		100.00		100.00
173464	Hall, Edwin L	229.90			229.90
173504	Hopkins, Frank	53.17			53.17
172272	Hoering, George H	14.62			14.62
172268	Hax, George L	163.76			163.76
172593	Hardy, John F	58.10			58.10
172125	Hoffman, Jackson		100.00		100.00
173740	Harpham, George S		25.00		25.00
173431	Hamilton, James			66.00	66.00
173752	Hintchliffe, George T	3.60	45.00		48.60
173739	Hutchison, Clark	36.82			36.82
154745	Heick, Detlief	52.78			52.78
166008	Henderson, John	13.28			13.28
165936	Herriott, George F	31.77			31.77
167172	Haas, Adam	6.88			6.88
164845	Hall, Andrew H	3.36			3.36
165583	Haven, Romanzo M	2.81			2.81

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	WAR DEPARTMENT—Continued.				
167674	Hubbard, Wilson P	$3.53			$3.53
173162	Herd, Joseph F	127.55		$50.00	177.55
173705	Hartzell, Michael	94.80			94.80
164016	Hicks, Henry		$100.00		100.00
170645	Haynes, Daniel F		25.00		25.00
172091	Hudson, George W	31.63			31.63
165905	Havens, John D	9.39	235.00		244.39
177541	Hutchinson, William H	639.86			639.86
174898	Hopkins, Morris	39.06			39.06
174899	——do	5.00			5.00
173682	Hartshorn, Sumner		100.00	100.00	200.00
173513	Honnold, Newton C	24.56			24.56
169188	Herrick, David W	219.66			219.66
172075	Hilton, Leonard	3.80			3.80
175015	Hews, George		100.00		100.00
174617	Hauchins, Carolina	17.27			17.27
174618	——do	1.92			1.92
174187	Halter, Louis	2.80	100.00		102.80
174661	Hatch, Jethro A	72.60			72.60
174817	Hogue, Elijah	166.65			166.65
173195	Holdredge, Charles H	1.65	75.00		76.65
177558	Harbert, John		142.10		142.10
174631	Hockaday, Samuel		35.00		35.00
174632	——do		5.00		5.00
174564	Hite, Christian W	269.33			269.33
171056	Harmon, Paul	38.03		50.00	88.03
175132	Haviland Stephen S	97.93			97.93
174992	Hall, Richard	25.00	75.00	50.00	150.00
173687	Hennegin, Peter	93.64			93.64
175971	Henry, Jefferson	69.50			69.50
175972	——do	7.50			7.50
173107	Harrington, Reuben D	70.64	100.00		170.64
173763	Houser, John B	34.94			34.94
173765	Hume, Joseph A	2.06	100.00		102.06
173484	Holmes, Charles F	152.55			152.55
175816	Hall, Henry H	59.75			59.75
174849	Hyman, John S	25.55			25.55
174863	Hill, Peter		100.00		100.00
174159	Hotchkiss, Henry E	26.03	160.00		186.03
168162	Henry, James V	80.44			80.44
176022	Hogan, Thomas	5.00	100.00		105.00
169196	Hinckley, Samuel B	49.49			49.49
172036	Hawse, Daniel	11.00	40.00		51.00
174167	Hooper, Joseph F	19.47	200.00		219.47
173665	Hougham, George	3.53			3.53
164021	Huffman, Charles	9.36			9.36
174394	Haner, Henry	26.66	75.00		101.66
175501	Hill. Elvin G	.84		50.00	50.84
162132	Herring, Albert	3.18			3.18
171228	——do	.35			.35
173731	Hiestand, John W	20.12			20.12
174093	Hawksworth, Charles	1,048.85			1,048.85
172216	Hamersley, S. A	68.53	75.00	50.00	193.53
172286	Hipsley, Webster H	132.14		50.00	182.14
174211	Henry, John	4.88			4.88
174212	——do	.54			.54
170090	Howard, Benjamin	40.87			40.87
173523	Hastings, William P	252.39			252.39
172962	Hackley, Thomas	9.06			9.06
172963	——do	1.01			1.01
174233	Hicks, Israel	8.05			8.05
174234	——do	.89			.89
171187	Howland, Banister	39.60			39.60
166908	Hotchkiss, Burritt	3.08			3.08
174935	Harrington, Stephen R	20.36			20.36
173709	Hallstead, Seymour C	50.13	160.00		210.13
174026	Hull, Henry D	94.96			94.96
174183	Harker, Garrison	20.40			20.40
172870	Hastings, Thomas J	412.01			412.01
174372	Horton, Dana P	311.65			311.65
174142	Holmes, George W	94.80	100.00		194.80

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
173185	Hyde, Melvin J	$274.61			$274.61
174095	Haupt, William Max	55.47			55.47
174545	Hobart, Richard	46.32			46.32
173186	Hervey, Samuel C	13.72	$100.00		113.72
143258	Hays, Isaac, jr	20.80	100.00		120.80
172105	Hayter, George W		100.00		100.00
174656	Henderson, Richard	44.93			44.93
172121	Hein, Frederick	207.20			207.20
173675	Huskins, James C	76.87			76.87
174338	Henson, George W	3.87	200.00		203.87
174154	Henry, George Alexander	92.83	100.00		192.83
175094	Houck, Andrew	40.35			40.35
174151	Hall, Thomas T	3.06	25.00		28.06
175092	Harding, Jared S		120.00		120.00
155023	Hutchins, Thomas L	10.67			10.67
171910	Humes, Cornelius		100.00		100.00
174923	Haynesworth, Charles	13.19			13.19
176512	——do	1.46			1.46
174960	Hockett (or Hackett), Solomon	2.14			2.14
175812	Hill, John M	42.30			42.30
166263	Hinker, Henry	3.25			3.25
167668	Hornor, John S	4.06			4.06
169560	Huntsman, John	2.82			2.82
173673	Hand, Stephen H	3.68			3.68
155330	Hill, George W	34.24	80.00	$80.00	194.24
155565	Henderson, Samuel		60.00		60.00
168935	Hanser, John	4.94			4.94
174951	Hickle, John W	71.62			71.62
175063	Hafhill, Solomon	3.10			3.10
107627	Hathcock, John	70.06			70.06
165238	Hurst, Asa	46.57			46.57
169069	Harp, John G. B	12.25			12.25
173754	Hall, William	8.18	100.00		108.18
155955	Highland, Edward	2.66	20.00		22.66
168686	Hoff, Jesse	3.10			3.10
167667	Heath, Francis P	4.06			4.06
173481	Hildebrand, Phillup R		122.79		122.79
172738	Hibden, Thomas M	4.02			4.02
168185	Holly, Septon J	3.10			3.10
172387	Hindman, John T	5.08			5.08
174950	Huffsmith, Samuel R	27.51			27.51
169457	Hopkins, William H	91.97			91.97
169299	Hendricks, James M	4.06			4.06
169314	Houseworth, Isaac	3.87			3.87
175094	Houck, Andrew	40.35			40.35
169294	Hinkle, Daniel H	3.10			3.10
157845	Henderson, John G	10.24			10.24
158785	Heath, Sylvester W	6.37			6.37
165565	Hauser, John C. (or Carl)	17.47			17.47
165708	Houston, John (alias Jno. Williamson)	2.77			2.77
171235	——do	.31			.31
166195	Heath, Charles N	443.79	100.00		543.79
166642	Hickman, Severance	11.48			11.48
176499	——do	1.28			1.28
166946	Hoovert, John	29.25			29.25
167678	Huxford, George	4.88			4.88
169178	Hall, Charles B	.49			.49
170497	Hartman, Phillip	3.25			3.25
172739	Hemphill, Stephen	100.74	300.00		400.74
174168	Hill, Stephen V. R	27.66			27.66
147322	Ingersoll, Henry W	14.87			14.87
146136	Itsell, Andrew J	8.12			8.12
148434	Iverson, Hans C. S		75.00		75.00
148240	Ives, Lucius H	15.76			15.76
147655	Ison, Gideon	17.33	100.00	100.00	217.33
152315	Irons, Francis	42.41			42.41
148338	Itter, Heinrich (or Henry)		300.00		300.00
147819	Isentrager, William L		200.00		200.00
151953	Irwin, John A		100.00		100.00
152562	Ingraham, Joseph		100.00		100.00
150925	Ingram, William S		90.00		90.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
152607	Ingram, William	----------	$85.00	----------	$85.00
148407	Idell (or Idol), Adam	$66.81	66.66	$88.89	222.36
154240	Ingram, John W	168.75	----------	----------	168.75
154715	Ingman, Oren L	----------	----------	50.00	50.00
154607	Ingmire, William F	324.98	----------	----------	324.98
155190	Ing, Christopher	131.94	----------	----------	131.94
155835	Isaacs, Sylvester	16.78	----------	----------	16.78
154563	Inman, Asher	61.74	300.00	----------	361.74
156868	Ives, Chas. P	54.29	----------	----------	54.29
166044	Irving, Hamilton	----------	100.00	----------	100.00
166971	Inman, Henry	----------	200.00	----------	200.00
168777	Ives, Joseph T	174.83	100.00	----------	274.83
169393	Inman, Marcus F	12.57	----------	----------	12.57
170157	Isam (or Ison), John	13.25	----------	----------	13.25
170158	------do	1.47	----------	----------	1.47
171130	Isence, Rolla	9.06	----------	----------	9.06
171491	------do	1.01	----------	----------	1.01
168065	Irving, Edward (or Edmond)	----------	285.40	----------	285.40
168066	------do	----------	10.00	----------	10.00
176050	Iseman (or Eisman), Frank	36.18	----------	----------	36.18
172218	Ingman, Luke D	76.14	----------	----------	76.14
165738	Isaacs, Wesley	2.54	----------	----------	2.54
171239	------do	.28	----------	----------	.28
173434	Ireland, William H	126.47	100.00	----------	226.47
174616	Ish, James	----------	100.00	----------	100.00
164506	Iliff, Alpheus	3.62	----------	----------	3.62
174651	Isom, James W	50.29	----------	----------	50.29
174109	Ingle, William E	60.30	56.25	----------	116.55
155423	Johnston, Matthias	282.60	185.00	----------	467.60
56707	Jenkins, Cyrus	114.23	----------	----------	114.23
146382	------do	10.00	----------	----------	10.00
155692	Jones, Benjamin G	487.30	----------	----------	487.30
146449	Jeffcoat, John	35.39	----------	----------	35.39
147198	Jegge, Josef	21.79	----------	----------	21.79
155664	Jenkins, Augustine M	769.46	----------	50.00	819.46
147887	Johnston, William O	45.30	----------	----------	45.30
155727	Jarvis, John P	39.80	100.00	----------	139.80
155314	Jackson, Joseph	----------	90.00	----------	90.00
155315	------do	----------	10.00	----------	10.00
153185	Jackson, Lewis	----------	276.50	----------	276.50
153186	------do	----------	10.00	----------	10.00
147290	Jackson, Pompey J. (alias Jacob Stocks)	145.69	100.00	----------	245.69
147291	------do	10.00	----------	----------	10.00
151886	Jeffries, Wm. (*See* Wm. J. Affleck.)				
149891	Johnson, Charles A	436.83	----------	----------	436.83
147026	Joseph, Alexander F	14.79	----------	----------	14.79
147216	Jordan, Thomas M	129.96	----------	----------	129.96
142510	Jones, William P	----------	----------	100.00	100.00
147693	Jones, Richard (or Dick)	8.80	300.00	----------	308.80
147717	Jenkins, George C	92.88	----------	----------	92.88
155412	Jamieson, Walter	130.00	----------	----------	130.00
147645	Jennings, John W	7.19	----------	----------	7.19
148488	Judge, Sye	2.11	33.33	----------	35.44
148489	------do	5.00	----------	----------	5.00
147762	Johnston, Samuel	25.08	----------	----------	25.08
148993	Jackson, Robert	93.82	100.00	----------	193.82
148994	------do	10.00	----------	----------	10.00
148510	Jones, Hartwell	85.40	100.00	----------	185.40
148966	Jellison, Lewis	38.84	25.00	----------	63.84
157948	Jones, Samuel M	24.70	----------	----------	24.70
147813	Johnson, Volney C	4.69	----------	----------	4.69
149637	Jones, Selah W	260.14	----------	----------	260.14
149796	Johnson, Preston	43.33	100.00	100.00	243.33
150204	Justice, Peyton C	----------	300.00	----------	300.00
146372	Johnson, William	----------	59.17	----------	59.17
146373	------do	----------	7.50	----------	7.50
132586	Johnson, James	----------	310.00	----------	310.00
147822	Johnson, Smith	10.55	----------	----------	10.55
150166	Jones, David W	163.15	75.00	100.00	338.15
149659	Joseph, Thomas J	321.25	----------	----------	321.25
150489	Jetter, William	122.95	80.00	----------	202.95

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
148581	Jennings, William	$49.48	----------	$50.00	$99.48
156619	Jones, Frank	59.72	----------	----------	59.72
151082	Jefferson, Thomas	25.40	$100.00	100.00	225.40
151083	------do	10.00	----------	----------	10.00
150497	Jones, Edward J	14.30	----------	----------	14.30
150850	Johnson, Emory W	92.10	10.00	----------	102.10
150991	Johnson, Edward S	11.13	----------	----------	11.13
151200	Jones, Eli B	32.56	----------	----------	32.36
149584	Johnson, James R	39.89	----------	----------	39.89
150185	Jacks, Samuel	68.90	----------	----------	68.90
151931	Jones, Sylvester	----------	290.00	----------	290.00
151932	------do	----------	10.00	----------	10.00
150918	Jones (alias Powell), Thomas P	----------	200.00	----------	200.00
151591	Jenkins, George N	137.78	75.00	----------	212.78
152006	Jones, Charles R	136.59	----------	----------	136.59
151948	James, John F	----------	28.33	----------	28.33
151949	------do	----------	5.00	----------	5.00
151526	Jones, Webber	----------	166.67	----------	166.67
151614	Johnson, James B	----------	100.00	----------	100.00
151999	Johnston, William W	35.66	----------	----------	35.66
152517	Jarvis, Edward	9.53	----------	----------	9.53
151618	Johnson, William H	13.72	----------	----------	13.72
152186	Jones, Maurice, 1st	----------	65.00	100.00	165.00
152187	------do	----------	10.00	----------	10.00
152154	Jemmison, Henry	36.96	200.00	----------	236.96
152155	------do	10.00	----------	----------	10.00
151171	Jacobs, Robert	57.47	100.00	----------	157.47
151876	Jones, Horace. (*See* Chas. H. Marshall.)				
152561	Jones, Robert A	43.15	100.00	----------	143.15
153006	Jewett, Henry	113.45	----------	----------	113.45
153173	Jones, Albert	----------	90.00	----------	90.00
153174	------do	----------	10.00	----------	10.00
153831	Jones, Thomas	241.74	100.00	100.00	441.74
153832	------do	10.00	----------	----------	10.00
152015	Jones, Daniel T	----------	200.00	----------	200.00
152581	Jackson, William A	164.80	75.00	----------	239.80
151027	Johnson, Thomas W	251.52	----------	----------	251.52
151924	Johnson, Green	3.60	300.00	----------	303.60
151925	------do	10.00	----------	----------	10.00
152108	Jennings, Noah	25.63	100.00	50.00	175.63
152575	Jones, Joel E	----------	100.00	----------	100.00
153853	Johnson, Oliver	142.06	100.00	----------	242.06
153854	------do	10.00	----------	----------	10.00
153855	Johnson, Tolbert	93.06	100.00	----------	193.06
153856	------do	10.00	----------	----------	10.00
151588	Joy, John R	22.40	----------	----------	22.40
152976	Jones, David	74.16	----------	----------	74.16
153803	Jones, Joseph J	398.74	----------	50.00	448.74
152154	Jemmison, Henry	36.96	200.00	----------	236.96
152155	------do	10.00	----------	----------	10.00
153005	Jacobs, Harvey	13.92	----------	----------	13.92
154319	Johnson, William B	294.64	----------	----------	294.64
154573	Jennings, Joseph H	70.00	----------	----------	70.00
154718	Jones, Robert B	89.87	----------	----------	89.87
168796	Jakes, Michael	64.35	----------	----------	64.35
154645	Johnson, Ebenezer	165.13	----------	----------	165.13
154646	------do	10.00	----------	----------	10.00
154819	Johnson, Levi M	384.50	----------	----------	384.50
155328	Jamison, Stephen	----------	90.00	----------	90.00
155329	------do	----------	10.00	----------	10.00
155452	Jones, George B	----------	200.00	----------	200.00
155181	Johnson, Irwin	176.73	----------	----------	176.73
155956	Jardine, James	6.03	----------	----------	6.03
155414	Johnson, Gilman L	7.97	35.00	----------	42.97
156207	Jordan, Edwin M	51.36	----------	----------	51.36
155972	Jackson, Ezra P	167.64	----------	----------	167.64
156124	John Baptiste, William. (*See* Baptiste.)				
155784	Jewett, George T	125.94	----------	----------	125.94
155845	Johnson, Moses	22.40	----------	----------	22.40
156280	Johnson, Francis A	81.37	----------	----------	81.37
155843	Jones, Virgil A	31.05	----------	----------	31.05

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	WAR DEPARTMENT—Continued.				
156804	Johnson, Marquis L	$93.38			$93.38
161964	Jerusel, Charles	22.90			22.90
161663	Jones, John	53.30	$100.00	$100.00	253.30
156905	Johnson, Thomas B	14.40			14.40
156591	Jelliff, Isaac	993.97			993.97
153903	Jekelfalnsy, Alexander	45.83			45.83
154869	Jones, Henry U	460.21			460.21
156606	Johnson, A. J	12.25			12.25
156963	Jackson, Joseph		325.00		325.00
152630	Johnson, James A	8.26			8.26
163497	Jolly, Samuel S	45.51			45.51
155859	Johnston, Robert W	12.66			12.66
163733	Johnston, John	53.70	33.33		87.03
156767	Jessey, Dublin			90.00	90.00
163638	Jones, George R	33.55			33.55
156867	Jewett, Harris E	23.02			23.02
155740	Jenkins, John W	67.05			67.05
156680	Jaensch, Frederick	29.77			29.77
156789	Jackson, Merida	26.50	33.33		59.83
156790	——do	7.50			7.50
156721	Juelg, Basil	40.36			40.36
165066	Johnson, Andrew		210.00		210.00
154331	Johnson John H	6.17	100.00		106.17
164584	Jones, Nimrod C	19.21			19.21
163681	Johnson, William H		235.00		235.00
164167	Johnston, Byron A	74.58			74.58
163903	Johnson, William		190.00		190.00
163904	——do		10.00		10.00
164261	Jones, George B	89.26	145.00		234.26
164224	Johnson, Lewis			100.00	100.00
165838	James, Edmund T	6.27	33.34		39.61
164281	Jordan, R. H	24.70			24.70
166122	Jones, Edmond	143.23	300.00		443.23
165440	Jungermann, Christian		200.00		200.00
166427	Jones, Ishmael	24.54	15.00		39.54
167332	Johnson, Robert		25.00		25.00
166714	Joslin, John S	122.61			122.61
166030	Johnston, Gloucester (or Gloster)	93.53			93.53
166031	——do	10.00			10.00
166992	Jordan, Sandy	25.27	33.33		58.60
166093	——do	7.50			7.50
166467	Jordan, Wesley		295.56		295.56
166468	——do	5.56	4.44		10.00
173419	Jones, Sylvester T (alias Sam'l B. Jenkins)		100.00		100.00
165847	Jacobs, Peter S	11.55			11.55
165472	Johnson, Clinton	175.27			175.27
164648	Jones, Thomas B	117.83			117.83
153823	Johnson, Edward S	19.40			19.40
168073	Jackson, Henry	121.43	100.00		221.43
168074	——do	10.00			10.00
167290	Jones, John	57.38			57.38
167811	——do	7.50			7.50
167842	Johnson, Isaac	117.15	66.77		183.82
167577	Jermerich, Gottleib	105.94		25.00	130.94
167835	Jackson, Thomas		145.00		145.00
167836	——do		10.00		10.00
167897	Jones, David	253.19			253.19
166707	Jones, James K	4.98	5.00		9.98
166689	Johnson, Benjamin	109.33			109.33
168075	Jenkins, Jacob	13.94	100.00		113.94
168560	January, Elias	93.65	100.00		193.65
168561	——do	10.00			10.00
164801	Jumper, George W	9.90	100.00		109.90
154668	Jackson, Abraham	12.15			12.15
154669	——do	1.35			1.35
168539	Jones, Jacob P		90.00		90.00
168540	——do		10.00		10.00
165019	Jones, Luman	123.72			123.00
167321	Jones, John E	55.54			55.54
168567	Jones, James	14.70	100.00		114.70
168568	——do	10.00			10.00

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	WAR DEPARTMENT—Continued.				
168492	Jewell, Daniel R	$75.81			$75.81
155178	Jerome, Charles W	49.29			49.29
168778	Jackson, Thaddeus P	71.64	$25.00		96.64
168071	Jackson. John	30.62	100.00		130.62
168072	——do	10.00			10.00
168563	Johnson, Nathan	11.11	100.00		111.11
169365	Jackson, William		96.50	$100.00	196.50
169366	——do	6.50	3.50		10.00
167389	Jones, Hubbard F	223.95			223.95
167889	Jones, Lester F. S	70.23	55.00		125.23
168512	Jefferies, Enos P	459.10			459.10
167349	Justin, Joseph	9.54			9.54
170110	Jackson, Isaiah			90.00	90.00
170111	——do			10.00	10.00
170416	Jenkins, Henry W	38.24	75.00		113.24
151030	Johnson, Edward F	44.50	166.66		211.16
170122	Jefferson, David	41.73	75.00		116.73
170123	——do	10.00			10.00
169858	Jones, Charles A	120.24			120.24
175158	Jeter, Henry H	131.62			131.62
167352	Jones, Chesley	56.02			56.02
168808	Jackson, Andrew	333.90			333.90
170435	Johnson, George P	32.00			32.00
170163	Jackson, Andrew	78.00	100.00	100.00	278.00
170164	——do	10.00			10.00
170855	Jones, Webster	418.00	85.00		503.00
170600	Jones, Buck		90.00		90.00
170601	——do		10.00		10.00
169241	Johnson, Niles B	34.13			34.13
170234	Judd, Seymour L	62.44			62.44
170603	Johnson, Andrew G	2.00	100.00		102.00
170604	——do	10.00			10.00
170249	Jones, Edward C	264.28			264.28
168123	Jennings, John M	70.19			70.19
171281	Johns, Solomon	20.83			20.83
171282	——do	5.00			5.00
172092	Johnson, Josiah	98.80			98.80
171494	James, Richard	13.57			13.57
171495	——do	1.51			1.51
171126	Jones, Andrew	12.23			12.23
171127	——do	1.36			1.36
170155	Jefferson, Elijah	12.55			12.55
170156	——do	1.39			1.39
170128	Jackson, Andrew	11.24	100.00		111.24
170129	——do	10.00			10.00
172016	Jackman, S. Theodore	31.95			31.95
172133	Jones, John W		100.00		100.00
172136	Jolliffe, Oliver	20.53			20.53
170659	Johnson, Jesse	563.57			563.57
167030	Johnson, Cuffy	8.93			8.93
171556	Jenkins, Rollin	9.29		50.00	59.29
169344	Jenkins, Andrew	12.71			12.71
99218	Johnson, Peter	22.19			22.19
172052	Jaiser, Charles F	4.43		100.00	104.43
122108	James, Josiah	7.77			7.77
166202	Johnson, Richard	10.44	100.00		110.44
171909	Jones, John. (*See* Henry Kurtz.)				
173626	Johnson, Lazareth (or Lazarus)	11.62	100.00	50.00	161.62
167288	James, Richard		90.00		90.00
177289	——do		10.00		10.00
172834	James (alias Jones), Alfred	6.25			6.25
172835	——do	.69			.69
172904	Justin, William	41.79			41.79
166183	Jones, Charles E	133.97			133.97
172163	Jacobs, John W	466.41			466.41
172150	Jester, John B	48.48			48.48
172943	Jones, Albert	61.27			61.27
172944	——do	7.50			7.50
171903	Jameson, Rush	156.48			156.48
172733	Jones, Isaac N	61.59			61.59
140158	Johnson, John H	186.70			186.70

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
173693	Jordan, John	$133.32			$133 32
172270	Jackson, Charles W	459.51			459.51
172254	Jones, William J		$100.00		100.00
174013	Johnson, James	22.13	100.00		122.13
173837	Jackson, Burrel		290.00		290.00
173838	do	3.91	6.09		10.00
172956	Jackson, James	22.80			22.80
172957	do	5.00			5.00
174232	Johnson, Isaac	8.94			8.94
172919	Johnson, Myron A	506.15			506.15
173762	Johnson, James K		100.06	$100.00	200.00
174379	Jones, Edward		100.00	100.00	200.00
172927	Joss, John C	67.76			67.76
173501	Jones, Lewis	29.57			29.57
174818	Jones, Abraham L	63.98			63.98
173435	Jordan, William S	352.17			352.17
174827	Jones, William		171.83		171.83
174540	Jackson, Thomas H	166.64			166.64
177140	Jenkins, James H. M	182.67			182.67
165706	Jackson, Washington	17.21			17.21
171233	do	1.91			1.91
174833	Jones, David		100.00		100.00
174044	Jordan, Byron	89.03			89.03
175095	Jones, Benjamin F	19.59	135.00		154.59
174627	James, Richmond	17.53			17.53
174628	do	1.95			1.95
174930	Jenkins, Moses	8.05			8.05
175771	do	.89			.89
172791	Johnson, Ezekiel T	150.03			150.03
173756	Johnson, Aaron C	36.60			36.60
173664	Jones, Alexander	5.16	200.00		205.16
168751	Johnson, Aaron	3.79			3.79
176511	do	.42			.42
169199	Johnson, William H	133.25			133.25
175977	Johnson, Sidney W		90.00		90.00
175978	do		10.00		10.00
165408	Johnson, Enos	8.47			8.47
171248	do	.94			.94
169567	Jones, Andrew	2.82			2.82
169561	Jones, Jonathan	2.81			2.81
154557	Johnson, Henry. (*See* John Stringer.)				
153910	Jones, Lafayette J	76.31	266.67		342.98
169312	Johnson, Marcus D	6.37			6.37
174215	Johnson, Bazille	4.88			4.88
174216	do	.54			.54
160465	Jones, Robert	5.09			5.09
171213	do	.56			.56
163293	Jones, Thomas	6.50			6.50
165222	Jones, Daniel	5.65			5.65
165786	Johnson, Jacob	8.94			8.94
167655	James, Daniel	3.53			3.53
146879	Kelley, William H	256.65			256.65
146259	Keasey, Samuel W	136.22			136.22
145778	Keen, Levi H	49.40			49.40
146135	Knight, Edwin	21.21	100.00		121.21
147631	Kelly, William B	240.87			240.87
155667	Kelly, Michael	44.73			44.73
155077	Kent, William W. E	7.99			7.99
154515	Kellar, Casper	17.09			17.09
155579	Killingsworth, James	81.72	100.00	50.00	231.72
154861	Kreskey, Peter W	121.09			121.09
150840	Kessler, Joseph J	5.42			5.42
147683	King, Levi		25.00	12.50	37.50
158063	Kelly, Elliott	3.54	25.00		28.54
148353	King, Merritt	136.46			136.46
146856	Knowlton, Albert D	48.65			48.65
147708	Kinyea, Robert		190.00		190.00
147709	do		10.00		10.00
146742	King, James M		185.00		185.00
148274	Kernon, James	9.00			9.00
69250	Knowlton, John C	48.62	100.00		148.62

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
146469	Kidd, Samuel J	$168.94			$168.94
146741	Keeler, Dexter D	80.56			80.56
148002	Kirk, Elam	98.50			98.50
148551	Kromer, Henry M	1.53			1.53
147724	Koonce, Joseph L	13.04			13.04
147993	Kinter, John	32.88			32.88
148519	Kinne, N. Henry	85.76			85.76
142948	Kennedy, Terrence J	485.39			485.39
148881	Kauble, Silas	22.86			22.86
146094	King, William F	156.75			156.75
148476	Kirk, Paris	26.27	$100.00		126.27
148477	——do	10.00			10.00
149007	Koehler, John H	132.05			132.05
149031	Kelly, William H	13.00	33.33		46.33
149008	Kerley, Turner. (*See* Turner, Curley.)				
147811	Keith, Cyrus E	26.99	100.00		126.99
149759	Kearns, Andrew	32.26			32.26
149764	Kinne, Theodore Y	455.37			455.37
148852	Kenney, Alonzo	4.60			4.60
147827	Knapp, Everett G	1.94			1.94
149777	Klebs, Martin. (*See* Martin, Clapps.)				
148857	Knowlton, Samuel	11.90			11.90
155900	Kurtz, George F	136.25			136.25
148575	Keys, John	114.10			114.10
148583	King, Josiah E	63.82			63.82
149779	Kinsley, Robert		260.00		260.00
150913	Keaton, Thomas R		200.00		200.00
149641	Kinley, John A	39.43			39.43
149569	Knox, Henry T	13.04			13.04
150498	Kimball, John W	3.59			3.59
150416	Kirk, Madison	54.06	175.00		229.06
150924	Kessler, Josiah	17.02			17.02
149139	Kingsley, Joseph H	56.44			56.44
150419	Kingsbury, Henry D	61.26			61.26
148463	Keeley, Felix	104.40			104.40
150921	Kagay, Daniel H	178.46			178.46
165881	Ketchum, Augustus C	364.14			364.14
151110	Keene, William		90.00		90.00
151911	——do		10.00		10.00
151195	Kenyon, Lester	87.79	25.00		112.79
150967	Kennedy, James	3.09		$50.00	53.09
152000	King, Josiah	51.31			51.31
152001	Kirk, Enos H	128.86			128.86
152003	Kilborn, Lawson S	32.69			32.69
149150	Knight, John B		100.00		100.00
148419	Koger, Granville	6.00			6.00
151168	Kappler, Louis	21.23			21.23
151606	Kettle, Stephen H	91.37	33.33		124.70
151874	Kent, James L	15.16			15.16
150824	Kennicott, George	237.67			237.67
151582	Knight, James T	196.88			196.88
151899	Kehn, John H	46.50			46.50
152188	Kirk, Abel	3.94	100.00		103.94
152189	——do	10.00			10.00
151971	Klingensmith, Casper	132.84	75.00		207.84
150987	Knight, Cyrenius B	86.36			86.36
151141	Kingsland, William W	58.35	160.00		218.35
153082	Keys, Charles A		200.00		200.00
153081	Kellogg, Edward P	61.63	100.00		161.63
153116	Kenyon, George L	111.68			111.68
153118	Kinner, Royal G	33.24			33.24
153076	Kuhn, Elbert J	15.84			15.84
153720	Koenigsberger, Herman	33.09			33.09
153795	Kaiser, Charles	102.70			102.70
151978	Kitchen, Francis A	131.45			131.45
150945	Knuckles, William	55.09			55.09
152148	Koch, Michael	191.83			191.88
168343	Kindreck, William J	103.53			103.53
153849	Knockton, Anthony		291.00		291.00
153850	——do	1.00	9.00		10.00
153050	King, Joseph S	30.33			30.33

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
148426	Kirkpatrick, Martin	$4.50			$4.50
152025	Kirk, George W		$200.00		200.00
152094	Kendrick, Hiland H	20.94			20.94
153041	Keifer (or Kiefer), Claudius		135.00		135.00
154235	Kelly, David	128.09			128.09
154565	Kittredge, Isaiah S		75.00		75.00
152527	Keelan, James		100.00	$50.00	150.00
153815	Klutts, Charles	15.56			15.56
154611	Kimball, Pardon L	312.75			312.75
154794	Kelley, John	29.52			29.52
154581	Kile, John W	169.42			169.42
154198	Kitch, Samuel A	91.06			91.06
155167	Kidder, George C	411.16			411.16
156027	Kidd er, Augustus L	82.87	100.00		182.87
154227	Kay, James R	31.99			31.99
155008	Kemp, Nathan	5.26	20.00		25.26
155440	Knowles, Richmond O	26.89			26.89
154255	Kelly, Leander		100.00	50.00	150.00
154487	Kennedy, Alfred	290.70			290.70
154870	Kenyon, Hiram S	66.85			66.85
155007	Kindle, Napoleon B	7.89	100.00		107.89
155724	Kinsey, Moses		100.00		100.00
154066	Kiest, Alexander	9.70	50.00		59.70
155152	Kidd, John	278.98			278.98
155553	Kratzer, Benjamin F	47.23	25.00	50.00	122.23
153900	Knight, Chester K	1.88			1.88
155470	Kautzman, Peter		140.00		140.00
156288	Kautner, William H	9.60			9.60
149050	Killen, Enoch		100.00	100.00	200.00
156594	King, Alonzo I	184.32			184.32
155853	King, Ephraim	10.72	14.29		25.06
156199	Kroeger, Henry	8.94			8.94
156286	Kirkendall, William J	114.04			114.04
163504	Killin, Samuel D		210.00		210.00
164154	Kendall, Uriah B	79.08			79.08
163671	Kidder, Elias H		75.00		75.00
156732	Kenny, John	52.99	15.00		67.99
164700	Kiefaber, John C	413.36			413.36
164573	Kelley, Robt	2.79	33.34		36.13
144045	Kuntz, Adam	20.60	33.33		53.93
155466	Kenney, John		100.00		100.00
156625	Kline, Charles	471.10			471.10
164590	Kelly, James	73.70			73.70
164592	Knight, John H	27.88			27.88
171570	Kerby, Charles	25.25	100.00		125.25
163881	King, John	17.20	100.00	100.00	217.20
163882	——do	10.00			10.00
156745	King, Hiram F	130.47			130.47
156826	Kelley, William	8.00	100.00		108.00
164174	Kingsbury, Augustus W	282.88			282.88
164794	Kenney, Forest	103.37			103.37
155851	Kingston, Enoch		25.00		25.00
155738	Kesselmayer, Charles H	71.68			71.68
165458	Keller, William H	308.17			308.17
165981	Kelly, Lyman	64.63	15.00		79.63
165034	Kenower, Jacob W	299.87			299.87
165886	Kirkham, Eugene	61.86			61.86
166414	Kinne, E. Oliver	260.03			260.03
166138	Kirkman, Joel T	47.30			47.30
165432	Kraut, John	50.05			50.05
165201	Kniffin, Myron A		100.00		100.00
165435	Koester, Edward	30.32			30.32
164423	Kilby, William C	33.92	120.00		153.92
164187	Kip, Isaac L	237.11			237.11
173105	Kelly, John	103.62			103.62
166231	Karns, Robert	48.03			48.03
165205	Kump, Zachariah		100.00		100.00
165848	Kendrick, Augustus E	452.95	160.00		612.95
166695	Koons, John	.70	120.00		120.70
166475	Kimbell (or Kimbro) John	86.79	69.00		146.79
166477	——do	10.00			10.00
165885	Kochendorfer, John		100.00	100.00	200 00

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	WAR DEPARTMENT—Continued.				
166040	Knott, John	----------	$90.00	----------	$90.00
166041	------do	----------	10.00	----------	10.00
166720	Kepford, Louis	$160.65	75.00	----------	235.65
166702	Kidd, James H	254.47	----------	----------	254.47
166657	Kirkpatrick, William	61.40	----------	----------	61.40
164746	Koch, William	80.88	----------	----------	80.88
166663	Kelly, Benjamin S	58.01	150.00	----------	208.01
173442	Keagle, Edward T	156.96	----------	----------	156.96
165482	Kemper, Gen. W. H	38.05	----------	----------	38.05
167622	King, John S	329.23	----------	----------	329.23
168096	Kemper, William H	29.45	----------	----------	29.45
167782	Kelsey, Melville	247.24	----------	----------	247.24
168558	King, George	56.00	100.00	----------	156.00
168559	------do	10.00	----------	----------	10.00
163700	Karcher, Andrew B	----------	100.00	----------	100.00
167904	Kellison, William H	26.30	----------	----------	26.30
167599	Kinsey, Martin A	----------	25.00	----------	25.00
156272	Kingrey, William	----------	25.00	----------	25.00
154332	Kissick, Joseph H	----------	100.00	$100.00	200.00
168507	Kumpel, John	----------	100.00	----------	100.00
167186	Ketchum, Joel B	4.71	----------	----------	4.71
167608	Kasinger, Nathaniel H	1.62	33.33	----------	34.95
167629	Ketchner, Peter B	66.21	----------	----------	66.21
168541	Kelley, Edward	117.54	100.00	100.00	317.54
168542	------do	10.00	----------	----------	10.00
168167	Keller, John H	----------	41.72	50.00	91.72
167204	Kennedy, John J	----------	100.00	----------	100.00
169377	Kirkpatrick, Hugh J	58.09	----------	----------	58.09
167800	Kempf, Peter	162.70	----------	----------	162.70
167243	Kitchen, Cornelius F	52.90	----------	----------	52.90
169375	King, Levi	----------	132.62	----------	132.62
167805	Kelly, Thos. (*See* Thomas McKeon.)				
156705	Knoll, Charles F	31.54	----------	----------	31.54
167907	Keller, Louis	221.80	----------	----------	221.80
167002	Kunitz, Henry	27.33	235.00	----------	262.33
170224	Kent, Jas. A	141.75	----------	----------	141.75
169217	Kerr, Frank D	119.63	----------	----------	119.63
170061	Kennedy, Porters J	91.51	50.00	----------	141.51
167926	Keller, Edwin J	90.63	----------	----------	90.63
170055	Klock, William	----------	100.00	----------	100.00
170387	Keeber, Michael	----------	200.00	----------	200.00
170433	Knittle, Jonathan	----------	66.67	----------	66.67
161769	Knox, Daniel E	22.22	----------	----------	22.22
170126	King, Green	----------	192.36	----------	192.36
170127	------do	----------	10.00	----------	10.00
169632	Kelley, William	----------	10.65	----------	10.65
171131	Kœhler, Jacob	16.00	100.00	----------	116.00
166187	Kelley, Aaron W	9.80	----------	----------	9.80
170656	King, Francis G	631.21	----------	----------	631.21
162867	Kelsey, Newell J	36.67	----------	----------	36.67
171105	King, James	8.37	----------	----------	8.37
171106	------do	.93	----------	----------	.93
171052	Kelso, Fredric N. B	----------	64.07	50.00	114.07
170651	Kinsloe, Albert S	98.77	----------	----------	98.77
170240	Kummer, Arnold	112.80	100.00	----------	212.80
171510	King, Horace	216.33	155.00	----------	371.33
169168	Kilmer, William H	248.28	----------	----------	248.28
171462	Knapp, William L	61.55	----------	----------	61.55
170237	Knapp, Andrew B	108.55	----------	----------	108.55
171895	Knouse, David S	49.14	----------	----------	49.14
170641	Knox, Lorenzo S	61.48	----------	50.00	111.48
177222	Klœker, Henry	35.52	----------	----------	35.52
172055	Kleiner, Jacob	----------	100.00	----------	100.00
170880	Kennedy, Edward T	4.32	----------	----------	4.32
170621	Knight, John P	72.06	----------	----------	72.06
171981	Kingsbury, David L	54.61	----------	----------	54.61
171905	Knapp, Alex. A	81.35	----------	----------	81.35
172148	Kirkpatrick, Samuel K	73.08	----------	----------	73.08
170680	Keyes, Luther J	142.11	----------	----------	142.11
171909	Kurtz, Henry (alias John Jones)	17.58	----------	----------	17.58

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
172020	Keiper, Henry O	$118.31	$100.00	$50.00	$268.31
173095	Kelly, Patrick	60.25			60.25
172044	King, John G	26.96	80.00		106.96
170116	Keller, Henderson	138.58	200.00		338.58
170117	——do	10.00			10.00
171923	Kinney, John	12.61			12.61
172249	Kitterman, William H	24.76			24.76
172200	Kempton, Frank H	97.19			97.19
172196	Ker, William W	175.01			175.01
173410	Kitchen, Green	5.69			5.69
172117	Kane, Morris W	194.92			194.92
171201	Knowles, Weston O	95.33			95.33
173146	Kimbrall, John	1,330.98			1,330.98
171550	Kniffin, Dennis D	173.65			173.56
172168	Knappen, Prosper L	157.50			157.50
172328	Kauffman, Peter	104.68			104.68
173703	Keller, Samuel P	73.71			73.71
172326	King, James	6.52			6.52
173126	Kennedy, William	35.55	50.00		85.55
163819	Kelly, Thomas H	21.70			21.70
172278	Kettler, Volrath	209.27			209.27
173516	Keiser, Isaiah	5.63	0.00		45.63
173153	Kissick, John	36.84	100.00	50.00	186.84
173775	Kirk, Monroe	9.99	105.00		114.99
171088	Kiolbassa, Peter	3.33			3.33
163294	Knight, William R	6.50			6.50
171582	Kelly, Samuel B	174.58			174.58
167929	Kaser, Jacob	4.06	200.00		204.06
172098	Kinney, Patrick S	52.90			52.90
172946	Kirkland, William	83.25	100.00		183.25
174018	Kirkpatrick, A. M	86.46			86.46
173458	Kirkendall, James W	105.49			105.49
171090	Kerr, Robert	8.04			8.04
173182	Kelly, Jerome	51.28			51.28
172209	King, David C	84.65			84.65
167696	Kirk, Mark	13.41			13.41
173450	Kennedy, Dennis J	184.73			184.73
175133	Kennedy, John D		300.00		300.00
175069	Kemp, George W	82.30			82.30
177778	Kraszynski, Morris	210.99			210.99
170085	Keith, William A	191.60			191.60
175013	King, John		100.00		100.00
175029	Key, Solomon P	350.50			350.50
175813	Kizer, Richard L		94.50		94.50
175019	Keach, William	153.85			153.85
171602	Kennedy, Duncan A	41.30			41.30
174548	Kelly, Joseph S	289.78			289.78
164014	Kreps, Adam T	50.42			50.42
175059	Kearns, Barton	18.26			18.26
157974	Kinnan, Amasa	16.18			16.18
175083	Knapp, John W		100.00		100.00
169327	Koester, Martin	2.82			2.82
175492	Kelleher, Michael	35.16			35.16
168662	Kruger, Ludwig W	4.24			4.24
168617	Kemp, Charles	4.80			4.80
176503	——do	.53			.53
175058	Kaull, David		100.00		100.00
146107	Kernodle, Harvey G	97.99			97.99
164356	Kemp, J. McKendree	51.30			51.30
166859	Kelso, Hugh A	14.79			14.70
173782	Kiess, John G	15.60			15.00
146480	Lovejoy, Francis	134 42		50.00	184.42
146264	Lank, William D	90.72			90.72
145790	Lester, Vincent L	6.08			6.08
156596	Lewis, Benjamin O	124.52	100.00	50.00	274.52
145458	Lamaster, George W	41.49			41.49
145491	Lincoln, Lucian O		200.00		200.00
146453	Lapham, Erastus W	126.95			126.25
149478	Little, Charles H			50.00	50.00
26176	Leake, Cyrel A	253.61		50.00	303.61
147203	Lakin, Albert G	40.40			40.40

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1991.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
143344	Little, John M	$15.50	$100.00		$115.50
155898	Lovely, Judson A		135.00		135.00
156278	Lampman, Durell	199.09			199.09
146043	Love, George M	62.40			62.40
156162	Letchworth, John J	5.13			5.13
153624	Lord, William	52.42			52.42
151577	Lindsay, Duncan	17.43	11.00		28.43
156028	Lamson, Henry J	70.20	100.00		170.20
145908	Low, John		10.00		10.00
146454	Lovell, Robert M	20.49			20.49
152128	Lewis, William D	66.43			66.43
149642	Lee, Benjamin F	296.94			296.94
146736	Levan, Benjamin F	26.36	100.00		126.36
143939	Loesch, George		100.00		100.00
144340	Logsdon, William D	39.97			39.97
156605	Lawrence, John T	293.14			293.14
147714	Lawrence, Elisha R	18.71			18.71
148234	Lamore, Louis	26.86			26.86
143940	Long, Ezekiel		200.00		200.00
147328	Laporte, David	21.38	56.66		78.04
148368	Labar, Andrew J	107.90			107.90
131421	Luther, John C	197.82			197.82
143941	Lipman, Lewis (or Louis)		100.00		100.00
143942	Lannfried, Henry	380.81			380.81
148006	Lyon, William B	80.94			80.94
148298	Loud, Francis M	12.38			12.38
148317	Love, Rankin (alias John McDonald)	42.99	50.00		92.99
152124	Lefleer, Samuel	90.00	100.00		160.00
148319	Lee, Philip	82.98			82.88
148354	Lizar, David	24.62		$50.00	74.62
148839	Leary, James		100.00		100.00
148332	Lawrence, Thomas	148.92			148.92
155761	Ludwig, Mahlon J	87.13			87.13
148536	Lecomber (or Lecumber), Edward, sr	135.20	100.00	100.00	335.20
148869	Leach, Rodney M	19.80			19.80
149039	Lankford, James W	8.00			8.00
148952	Leek, Richard D	5.33	33.34		38.67
147787	Lasater, David H	27.78			27.78
148446	Lee, Abner A	59.35			59.35
146905	Loehr, Timothy	81.84			81.84
147746	Luttrell, Logan	21.47			21.47
149803	Laundry, George	108.06	100.00		208.06
149804	——do	10.00			10.00
156811	Lenan, William L	222.06			222.06
148849	Lewis, James	18.66			18.66
149043	Lewallen, Campbell		43.94	50.00	93.94
141910	Lowery, William	84.93			84.93
148550	Levick, Abraham	55.95			55.95
146906	Leonard, Henry R	51.87			51.87
148854	Lane, Edward H	11.90			11.90
148855	Lowe, Frederic A. B	11.90			11.90
149606	Linton, Albert		200.00		200.00
141906	Lovelace, Thomas J	129.86			129.86
149825	Lovelace, Moses	16.00	100.00		116.00
149826	——do	10.00			10.00
150200	Landon, George M	76.69			76.69
148450	Largent, William W	383.08			383.08
147812	Lawson, Edwin C	397.81			397.81
149120	Lyon, William A	144.76			144.76
149605	Littell, John T		75.00		75.00
150357	Lieb, Hermann	94.62			94.62
149092	Lothrop, Cherbury F	33.56			33.56
148975	Lewis, Charles M	327.90			327.90
149756	Leykam, John	34.10			34.10
150476	Lovering, Frederick E		90.00		90.00
146470	Lowrey, Francis H	67.23			67.23
147756	Lawrance, Uriah M	253.48			253.48
147757	Lowry, John C	208.54			208.54
148980	Lile, James H	66.89		50.00	116.89
148556	Lauderbaugh, John	45.91			45.91
148853	Lane, John	11.90			11.90
150213	Lungershausen, Charles	342.61			342 61

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
148981	Lowe, William D	$33.85			$33.85
149656	Lee, Edgar	116.16			116.16
150223	La Pointe, George W	121.93	$100.00		221.93
150426	Linn, Ervin D	19.90			19.90
151116	Lyle, Samuel	30.69	35.00		65.69
147663	Lightfoot, Nathaniel L	83.48			83.48
150167	Laugherty, Thomas J	60.23	75.00		135.23
150487	Lindsey, John (alias John Lancet)	80.53			80.53
151511	Logan, James B	38.64			38.64
149557	Lamson, James W	19.13	100.00		119.13
148464	Lines, Simon D. B	156.02			156.02
149057	Leiper, Joseph M	154.03			154.03
149783	Lynde, John		100.00		100.00
150387	Langenshwat, Wilhelm		100.00	$50.00	150.00
150927	Leiser, Theodore	206.24	100.00		306.24
135373	Lonesome (or Lotsom or Lotsum,) Robert	15.30			15.30
135374	——do	5.00			5.00
147825	Lippert, Eugene W	91.67			91.67
148585	Lanagan, William H		100.00		100.00
150425	Leiter, Collin P	91.52			91.52
151554	Leeper, James		210.00		210.00
146051	Lee, Jesse M	148.60			148.60
151131	Little, Edward		100.00		100.00
151196	Lawton, Ira G	30.32			30.32
151137	Lewis, Charles D	390.97			390.97
150866	Laird, Thomas C	66.11			66.11
151566	Loughridge, James	51.77			51.77
150957	La Point, Moses A	18.78			18.78
151942	Landers, Lazene	156.59	100.00		256.59
151943	——do	10.00			10.00
163482	Leeds, Marcellus A	166.22			166.22
150972	Lyon, Sanford W	317.77			317.77
152011	Lloyd, Sillsbury	93.00			93.00
152163	Lastley, Thomas		89.83		89.83
152164	——do		7.50		7.50
150861	Latimer, Edward H	5.88			5.88
150942	Liggin, Peter	58.11			58.11
150962	Le Baron, De Loss C	16.64			16.64
152172	Lynes (or Lyons), Jerry	23.63	300.00		323.63
152173	——do	10.00			10.00
150835	Lee, Milton	12.03			12.03
150983	Lambert, Harvey C	22.54			22.54
151136	Loomis, Riley		100.00		100.00
151879	Langan, George W		100.00		100.00
150989	Lewis, Edward H	41.44			41.44
152133	Little, Cleveland C		100.00		100.00
52760	La Rue, Samuel J		100.00		100.00
153004	Lamour, John		210.00		210.00
148337	Langley, Chesterfield	10.40	85.00		95.40
151967	Low, William H	48.90			48.90
153167	Laffoon, Henry	102.36	100.00		202.36
153168	——do	10.00			10.00
152093	Lawrence, Elijah C	86.45			86.45
151613	Lyman, Henry W		56.03		56.03
152963	Lansing, Edwin Y	24.13			24.13
152135	Leonard, James A	215.26			215.26
152137	Lucas, Thomas J	46.41			46.41
151910	Lunbeck, Joseph R		100.00		100.00
152545	Locke, Charles A	31.92			31.92
167000	Lindsay, John G	27.79			27.79
152115	Law, Asberry (alias Asbury Bousson)	18.35			18.35
153023	Lamb, John	7.22			7.22
153080	Liscum, Frank H	32.94	100.00		132.94
151029	Long, Christian Y	45.50			45.50
152557	Losch, John		100.00		100.00
152567	La Mont, Gains E	12.09	185.00		197.09
153799	Lampitt, Edwin D	219.96	135.00		354.96
153436	Lavine, Peter		33.33		33.33
153442	Lario, Augustus A	54.32	25.00		79.32
150950	Landram, John	244.64			244.64
153438	Lucas, Thomas B	34.44			34.44

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	WAR DEPARTMENT—Continued.				
153713	Lowry, Gad C	$67.93			$67.93
152586	Lacey, John		$100.00	$100.00	200.00
153083	La Fleiche, William W	157.54			157.54
153723	Lang, John	109.83			109.83
150978	Lake, Charles W	194.43			194.43
152599	Lowe, Davis C	112.40		50.00	162.40
154044	Lingfelter, Jacob M	45.89			45.89
154595	Lewis, Lemuel C	289.23			289.23
154056	Lennard, George R	168.80			168.80
153099	Leggett, Simeon	65.96		50.00	115.96
153105	Larrabee, John		100.00		100.00
154048	Lee, Andrew	385.03			385.03
154239	Laird, Samuel	86.45			86.45
154477	Lamburth, Robert M		100.00	50.00	150.00
152569	Litherland, Eben C	65.55			65.55
154602	Low, Avery T	357.27			357.27
154639	Livis, Jack	19.51	60.00		79.51
154640	do	7.50			7.50
158714	Lafferty (or Laferry), James R	111.25	135.00		246.25
152956	Lee, Dwight M	92.33			92.33
153741	Lewis, Joseph	11.05			11.05
154659	Levy, Alexander	15.34			15.34
154660	do	1.70			1.70
154618	Little, George S	39.80			39.80
152614	Layne, Alexander	6.00			6.00
154568	Linkenhiel, Christian H	33.02	15.00		48.02
148853	Lane, John	11.90			11.90
155028	Liston, John	2.13			2.13
162450	Littlefield, James H		100.00		100.00
154224	Linbarger, Andrew T	85.21			85.21
152628	Lock, David R	513.53			513.53
154823	Loyd, Alfred		75.00		75.00
155171	Lord, John S	129.87			129.87
152609	Lawson, Joseph R	345.19			345.19
154721	Lyke, Hiram F	70.09			70.09
154726	Larkin, Courtland P	27.72			27.72
154728	Lamond, Truman	28.16	100.00		128.16
154744	Lacey, Alonzo H	38.13			38.13
154827	Littlewort, Richard J	50.74			50.74
155011	Lindsey, Lafayette	62.40			62.40
155318	Lewis, Decatur		190.00		190.00
155319	do		10.00		10.00
155551	Ludeke, Conrad D	17.31	100.00		117.31
155636	Leach, Henry		100.00		100.00
155954	Long, Joseph M	8.61			8.61
154260	Low, James H	25.98			25.98
155464	Long, Hiram		200.00		200.00
155837	Lady, Milton E	21.83	100.00		121.83
155691	Love, Homer L	6.13	40.00		46.13
156116	Lastree, Hector	11.46			11.46
156117	do	1.27			1.27
153462	Lugar, Joseph	52.11	33.33		85.44
155182	Lewis, Samuel	75.99			75.99
156008	Luce, Leonard P	58.32			58.32
156303	Lewis, Hiram	32.01			32.01
154261	Limpus, William F	60.31			60.31
156004	Lake, Marion S	258.59			258.59
154270	Lahue, Marshall	125.69			125.69
155905	Long, Henry	6.65			6.65
156911	Long, Andrew K			50.00	50.00
169244	Lodge, Samuel	2.05			2.05
152065	Lord, Joseph O	170.21			170.21
152102	La Mott, James P	75.89			75.89
153902	Labagh, Peter J	62.48	100.00		162.48
155641	Ludington, John Q. A	49.04			49.04
155961	Lapha, George W	338.64	100.00	50.00	488.64
156274	Loy, William H		300.00		300.00
156604	Laird, James	117.63			117.63
155582	Laird, Nathan	46.72			46.72
163847	Leftwich, Francis M	51.42	75.00	50.00	176.42
163477	Lewis, John N		100.00		100.00

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	WAR DEPARTMENT—Continued.				
152067	Lees, Thomas	$397.66			$397.66
155583	Lehr, Levi B	107.93	$160.00		267.93
155264	Lenfesty, Joseph F	16.74	60.00		76.74
155733	Lay, John		328.19		328.19
148586	Lanergan, John	35.75			35.75
156679	Ladermann, Otto C	12.03			12.03
155587	Lawrence, William	80.45			80.45
156801	Lawd, James G	28.80			28.80
155993	Linville, John W	137.47			137.47
156814	Lorts, Adam	183.75			183.75
156813	Lewis, Clinton	27.60			27.60
156817	Lakin, John W	5.83			5.73
164594	Lobb, William		100.00	100.00	200.00
163737	Ladd, George P	531.66			531.66
164412	Long, Melvin P	38.59			38.59
165093	Lehman, Joseph			50.00	50.00
164580	Lee, James E	3.12	33.34		36.46
163739	Losure, Mariot	49.12			49.12
163856	Lefors, Samuel		23.61		23.61
163640	Leavitt, Jeremiah K			50.00	50.00
163901	Lawyer, Edward		32.83	50.00	82.83
163902	——do		7.50		7.50
156017	Lambert, John J	36.00			36.00
156740	Lancaster, George W	41.47			41.47
156823	Lamson, Thomas D	81.52			81.52
164751	Lawrence, Marcenas C	13.08			13.08
164782	Lapham, Valentine	61.04			61.04
165030	Long, William	6.89			6.89
165080	Lewis, Benjamin F	40.25			40.25
164718	Levan, Porter	320.22			320.22
155979	Lightburn, Calvin L	328.37			328.37
165120	Landis, Isaac D	50.40			50.40
154507	Latham, Joel T		85.00		85.00
171921	Losure, William	578.04			578.04
163662	Larkin, John		100.00	100.00	200.00
164721	Liggett, Robert W	47.37			47.37
163795	Linton, Robert J	213.39			213.39
164709	Lemmer, Fred, sr	16.90			16.90
166220	Le Blond, Gideon	106.72			106.72
129418	Lynch, Michael	64.13	100.00		164.13
166416	Ludwig, Gottlieb	362.90			362.90
165815	Lewis, James M	18.38	75.00	50.00	143.38
166230	Luke, Isaiah D	14.64			14.64
163666	Lull, Frederick A	39.69			39.69
164724	Lamoreaux, Samuel	42.05			42.05
165900	Luther, Ransom W	166.34	15.00		181.34
166501	Leidy, Philip	69.29			69.29
146029	Lucas, Henry S	1,745.96			1,745.96
166380	Lane, Joseph J	238.39			238.39
166697	Loree, Levi		100.00		100.00
164637	Lane, Robert C	18.74			18.74
165186	Laughlin, William M	518.44			518.44
164442	Leinart, Daniel H	3.08	75.00	50.00	128.08
166146	Liston, John W. F	79.97			79.97
171220	Lovell, Ogden	179.37			179.37
166444	La Rue, James S	155.40		50.00	205.40
166484	Lindsay, Irving		90.00		90.00
166485	——do		10.00		10.00
166242	Lair, John A	218.64			218.64
164790	Langhney, Edwin G	284.85	240.00		524.85
166112	Landry, Peter	24.43			24.43
166113	——do	5.00			5.00
164176½	Lincoln, Thomas	46.19	100.00		146.19
164177½	——do	10.00			10.00
166722	Lupien, George	64.56			64.56
166239	Lane, William H	55.39			55.39
167852	Light, William D		21.07		21.07
167212	Lees, Edward M	15.19			15.19
106392	Lathrop, Joseph		200.00		200.00
166004	Laurent, Joseph		100.00		100.00
166100	Leche, Augustine	25.98			25.98

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	WAR DEPARTMENT—Continued.				
166101	Leche, Augustine	$5.00			$5.00
166700	Lyman, James H	115.08			115.08
154229	Lane, William T	24.13	$240.00		264.13
165050	Leavitt, Samuel K	157.88			157.88
165044	Lock, William	52.57	160.00		212.57
165858	Lasell, Joseph W. (or William J.)	16.75			16.75
166246	Lewis, Frank M	78.02			78.02
167316	Leonard, Giles R	33.59			33.59
165416	Langston, William W	171.51			171.51
27478	Lampkins, Prince		90.00	$100.00	190.00
167824	do		10.00		10.00
168061	Leon, Michel	6.27			6.27
168062	do	.70			.70
168059	Lee, Sanford	8.99			8.99
168060	do	1.00			1.00
165927	Lownsbery, Edward	115.45			115.45
166676	Leach, David D	76.23			76.23
166065	Lucy, Robert W	31.94			31.94
167837	Louis, John Wesley (or John Wesley)		90.00		90.00
167838	do		10.00		10.00
167584	Lewis, James	29.42			29.42
166448	Lindsay, William A	26.78		100.00	126.78
167892	Lowe, John R	8.72			8.72
163090	Laney, Herbert J. (*See* Harburt Wideawake.)				
163810	Lynch, Martin		300.00		300.00
152047	Lord, Thomas	4.51			4.51
168154	Lindsey, John	125.17	100.00		225.17
165446	Lonigan, Thomas P	78.00			78.00
169571	Lum, Charles M	43.91			43.91
168166	Le Parke, Eli	66.90	95.00		161.90
167236	Lucy, John	7.25			7.25
166165	Longcor, Addison N	63.23			63.23
163707	Lacey, Benjamin F.		240.00		240.00
168547	Lee, Charles	38.60			38.60
168548	do	5.00			5.00
155701	Love, William A	50.45			50.45
167231	Lingenfelter, Samuel B	383.91			383.91
168110	Lamson, Horace P	41.33			41.33
169856	Lee, Oren D		80.00		80.00
168386	Lee, Henry	36.36			36.36
168387	do	5.00			5.00
167810	Larrabee, Leroy E	34.89			34.89
167889	Lowenstien, Moritz	99.99	35.00		134.99
169896	Lukins, Thomas J	287.56			287.56
164415	Lawhorn, David A	89.66			89.66
173725	Lyons, James	263.09	125.00		388.09
167364	Liford, Murray	2.98	33.34		36.32
166180	Lord, Alonzo E		27.20		27.20
171051	Learned, Samuel F. H	387.84			387.84
171253	Lloyd, Robert		90.00		90.00
171254	do		10.00		10.00
172808	Lookebill, Peter O	5.41	200.00		205.41
170250	Levings, Myron W	147.60			147.60
170399	Lacoppidan, Adolph	10.47			10.47
173524	Livingstone, Charles H	150.21	100.00		250.21
168526	Long, Edward			50.00	50.00
171101	Lacey, Pleasant	120.60	62.50		183.10
171102	do	10.00			10.00
169923	Leonard, William L	198.24			198.24
171057	Lyons, Martin	15.33			15.33
170449	Lehmer, Henry	317.91	100.00		417.91
169378	Love, Hezekiah I. Z		100.00	50.00	150.00
169381	Ladd, Henry		100.00		100.00
171538	Love, Rankin (alias John McDonald)	42.98	50.00		92.98
171536	Lang, Henry	356.62		50 00	406.62
171973	Lambdin, William R	131.66			131.66
172349	Legare (or Legree) Murry		90.00		90.00
172350	do		10.00		10.00
171900	Larimer, Samuel B	77.89			77.89
172300	Lockwood, Charles C	23.52	100.00		123.52

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
168128	Lyon, Virgil H	$10.86			$10.86
171950	Lewis, William A		$28.33		28.33
171951	——do		5.00		5.00
172175	Leonard, Seth H	167.58			167.58
172369	Lacy, Neptune	79.67	100.00	$100.00	279.67
172370	——do	10.00			10.00
171162	Littlefield, Henry Warren	108.20			108.20
172303	Lyon, Samuel	10.32			10.32
172811	Lee, Isaac	10.80			10.80
172812	——do	1.20			1.20
172342	Lynch, Allen	9.86			9.86
172343	——do	1.10			1.10
177067	Lewis, John Q	260.47			260.47
172823	Lockhart, Alexander (or Lockett)	10.09	25.00		35.09
172824	——do	5.00			5.00
177022	Lamb, John	138.63			138.63
172898	Lewis, Edwin E	311.68			311.68
172587	Lanning, John T	40.58			40.58
168124	Loer, Thomas B	9.36			9.36
107697	Loughmiller (or Lockmiller), John	6 .77			65.77
172274	Lamb, William W	122.75			122.75
172167	Lemasters, Albert W	81.01			81.01
172118	Legendree, Joseph A		400.00		400.00
171083	Lottridge, Francis M	230.00			230.00
171930	Lee, Benjamin F	17.59			17.59
172607	Losey, Harris P	21.44			21.44
172047	Luther, Ransom W	64.38			64.38
172299	Leonard, Sargeant E	4.97	100.00		104.97
173492	Lynch, John C	109.10			109.10
173653	Lyon, Leicester D		140.00		140.00
172069	Litteral, H. B	36.16			36.16
169172	Leitch, John W	375.24			375.24
172779	Lowry, Robert R	47.00			47.00
173712	Loxley, B. Ogden	45.24			45.24
165607	Lefever, John M	3.08			3.08
62938	Lynn, Thomas M	54.80			54.80
170377	Lasher, Leonard			50.00	50.00
165630	Leitner, John A	7.87			7.87
165733	Lynch, Solomon	2.79			2.79
171236	——do	.31			.31
167644	Ludington, James H		100.00		100.00
172285	Loomis, John L	173.97			173.97
174133	Lashley, David	38.10			38.10
174229	Loung, Isaac	8.94			8.94
174378	Law, John T	124.91			124.91
173783	Loper, Jacob	143.99	150.00		293.99
173487	Lutz, Alfred D	94.87			94.87
173128	Luckey, J. B	556.04			556.04
174334	Liles, David A	3.86	200.00		203.86
172796	Leavitt, Philander C	95.00			95.00
174926	Logan, Samuel		65.00	50.00	115.00
174927	——do		10.00		10.00
172238	Lazenby, Robert	6.18	200.00		206.18
174035	Lermond, Franklin B	96.84			96.84
172079	Lombar, Frank E	43.70			43.70
174836	Leary, Dennis. (*See* Dennis O'Leary.)				
172758	Long, William R	57.79	100.00		157.79
173192	Lyon, Ellis V		100.00	100.00	200.00
174342	Lewis, Leonard L	198.68			198.68
172795	Lewis, Silas H	48.71			48.71
173657	Leverty, Lealdes F	4.29			4.29
173846	Love, William	82.41	100.00	100.00	282.41
173847	——do	10.00			10.00
174106	Letherbury, James W	13.80	100.00		113.80
149737	Larkin, Henry H	7.73	120.00		127.73
174145	Logan, William S	58.04			58.04
171180	Lamb, Chas. C	37.75			37.75
174165	Leverich, Chas. W	6.65	100.00		106.65
172571	Little, James	9.55			9.55
174561	Lincoln, William A		85.71		85.71
166261	Longcor, William	2.82			2.82

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	WAR DEPARTMENT—Continued.				
164812	Lewman, John W	$3.53			$3.53
174904	Labtus (or Labitue), Edward	9.40			9.40
174905	——do	1.05			1.05
175064	Lynch, James M		$146.32		146.32
168147	Luce, Constant	253.39			253.39
166740	Looper, Robert	4.61			4.61
168458	Leakey, Anthony		21.81		21.81
156684	Langguth, John G	20.82			20.82
174619	Longest, Moses	50.80	50.00	$50.00	150.80
174620	——do	10.00			10.00
166753	Leadford, John H	3.55			3.55
173706	Leaper, George W	18.20		50.00	68.20
165710	Lee, Frank	3.25			3.25
165794	La Mott, Walter	6.38			6.38
165864	Landers, Henry B	10.00			10.00
166737	Lenz, Charles	2.34			2.34
170899	Laser, Abraham	3.70			3.70
171962	Lee, John	14.00			14.00
172154	Lockhart, Alexander	16.74			16.74
174163	Lont, Henry J		100.00		100.00
174393	Lahey, John H	43.42	25.00		68.42
146252	Myers, J. Wesley	121.90			121.90
131508	Mershon, John N		100.00		100.00
147320	Munson, Gilbert D	211.69			211.69
147632	Merrill, Harry P	670.58			670.58
147323	Marble, Dustin	66.83			66.83
155975	Mohler, Samuel L		75.00	100.00	175.00
145784	Malone, William L	76.54	100.00	50.00	226.54
155710	Macy, Eliab G	659.29			659.29
146496	Maddocks, Leonard J		100.00	50.00	150.00
147304	Moffit (or Moffatt), James	5.80	100.00		105.80
147305	——do	10.00			10.00
147318	Martin, Robert	68.60			68.60
146456	Miller, James J	58.50			58.50
146500	Morey, Frank E		128.02		128.02
147006	Mattoon, Sylvester	70.65			70.65
146254	Murphy, Jonathan D	158.47			158.47
146256	Myers, Thomas	206.66			206.66
146257	Mooney, Jeremiah	463.32			463.32
146451	Mitchell, John B	31.43			31.43
147314	Marolotzi, Otto	60.26			60.26
146455	Morris, John	64.10			64.10
147283	Morgan, Tillington. (*See* Littleton Coleman.)				
145057	Morrow, Alexander	314.48			314.48
156024	Mauxon, James B	23.40			23.40
155669	Maull, Robert F	48.12			48.12
146725	Momyer, Cyrus J	7.83			7.83
156842	Morgan, Thomas L		100.00		100.00
156759	Moore, James B	3.50			3.50
155577	Moore, Joseph			100.00	100.00
130672	Moore, John	211.66	95.00		306.66
149765	Marshall, Collin	115.43			115.43
145856	Mayfield, Anthony	54.15	87.50		141.65
145857	——do	10.00			10.00
146734	Maine, Myron		100.00		100.00
159412	Macurdy, David A	9.89			9.89
146886	Moon, Seth	22.43	50.02		72.45
147637	Moore, Samuel W	44.67			44.67
146739	Morris, Martin C	8.23			8.23
147219	Morse, Elisha	187.69			187.69
156960	Mundorf, Eli	78.15			78.15
146465	Marsh, Joseph	88.80			88.80
146894	Morris, George S		60.00		60.00
143943	Meagher (or Meager), Francis		210.00		210.00
143305	Meeker, Hanford E	129.47		50.00	179.47
146893	Meredith, John	94.77	300.00		394.77
148315	Mead, Matthew	393.84		50.00	443.84
146750	Mather, Jesse	32.49			32.49
147225	Miller, John A	53.28			53.28
148355	Marsh, Eugene A	128.07			128.07

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
148370	Merrell, William H	$30.00			$30.00
148239	Motham, Charles V	23.58			23.58
126347	Martin Ezra B	71.76			71.76
147733	Miller, Henry C	29.42			29.42
148261	Manfred, Henry	133.00			133.00
148525	Mitchell. William F	130.11			130.11
147727	Mannery, Firman (or Freeman)	83.73			83.73
148498	Mills, Henry	209.50	$100.00	$50.00	359.50
147659	Metzler, Benjamin F	59.86			59.86
146509	Martland, William J	50.78	100.00		150.78
147665	Merchant, Rodney (or Samuel R.)			50.00	50.00
148299	Maynard, George F	12.38			12.38
148005	Mellinger, Jeremiah A	58.56	100.00		158.56
148371	Maloy, James	107.28			107.28
149045	Marler, Andrew		200.00		200.00
147015	Miner, Seymour Z	16.81			16.81
154472	Menn, Henry	100.47			100.47
146202	Montgomery, Elmore T	96.94	110.00		206.94
148267	Magerhaus, August	26.88			26.88
149044	Milican, William		52.55	50.00	102.55
148874	Martin, Samuel	234.38			234.38
148880	Melter, Jacob	21.33			21.33
148259	Minor, John	2.16			2.16
148541	Morgan, Halsey		100.00		100.00
140974	Moore, David M	91.08			91.08
148834	Meserve, Justin	12.38			12.38
150156	Murray, John		200.00		200.00
150196	Metcalf, James W	60.23	100.00		160.23
147338	Meyer, Gerhard	110.10			110.10
147744	Maxwell, Alexander			100.00	100.00
163656	Muzzey, Loring W		100.00		100.00
149109	Mortel, Thomas		140.00		140.00
146087	Markland, Garah	8.92			8.92
148460	Moody, Strong B	134.37			134.37
150209	Miller, George A	22.19			22.19
149635	Merriman, Rees L	249.86			249.86
149813	Martin, Louis	17.21			17.21
149814	——do	1.91			1.91
150152	Mayes, Joseph A		100.00		100.00
165114	Morrison, John H	314.13	160.00		474.13
147818	Morgan, Jonathan A	84.44			84.44
150157	Mitchell, Jacob B	93.90			93.90
150381	Mitchell, Paul	56.72			56.72
150915	Muncy, James F		200.00		200.00
150175	Martin, Newton	75.74	160.00		235.74
150548	Mosley, Larry	9.75	155.00		164.75
150549	——do	10.00			10.00
149653	Major, Samuel	156.83			156.83
147821	Moss, Jacob W	17.52	85.00		102.52
164685	Myers, Lewis. (*See* Louis Denee or Denny.)				
150214	Marvin, Henry C		100.00		100.00
156626	Manning, Frederick L	116.64			116.64
140759	Mayo, Charles H	34.07			34.07
151512	Morton, Marcus	20.50			20.50
151099	May, Wesley	105.93	100.00	100.00	305.93
151100	——do	10.00			10.00
149587	Moore, Isaac H	17.74	25.00		42.74
149786	Mowrey, Jacob C	411.55			411.55
150418	Morse, Andrew J	18.12			18.12
150502	Munroe, George M	28.77	100.00		128.77
77532	Martin, Jacob	45.68			45.68
150376	Merrill, James	122.95			122.95
150388	Morse, William S	205.45			205.45
150803	Mullen (or Mullins), Bernard			100.00	100.00
151102	Moore, Charles	56.00			56.00
151597	Morey, Henry S	71.01	100.00		171.01
150550	Maurelle, Paul	19.39			19.39
150863	Martin, Elijah D	69.75			69.75
150207	Moulton, David		75.00	50.00	125.00
150937	Marshall, John, sr	32.94	40.00		72.94
143327	Maloney, Edwin	13.92	20.00		33.92

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	WAR DEPARTMENT—Continued.				
151571	Martin, Robert E	$44.03			$44.03
151955	Miller, Isaac	42.12			42.12
151112	Moran, Frank D	65.71	$75.00		140.71
150798	Myer, George V	81.49			81.49
151127	Murray, George W	155.54			155.54
151161	Meserole, William E	543.53			543.53
151602	Murray, Peleg F		100.00		100.00
152005	Molloy, Edward	128.55			128.55
152152	Mount, Peter	26.36	100.00		126.36
151003	Morse, Chauncy C	32.09			32.09
150939	Moore, George R. H		100.00		100.00
151958	Miller, Jacob E	69.18			69.18
151217	Martin, Isaac N	489.04			489.04
152080	Marlett, Richard D		135.00		135.00
152090	Meyer, Henry			$50.00	50.00
148418	Mize, Harvie J		200.00		200.00
151881	Merrill, David A	82.16	100.00		182.16
150960	Maguire, James	71.09			71.09
151555	Mercer, Elijah		100.00		100.00
150808	Moran, John	135.87			135.87
152991	Meigs, Lucien	95.78			95.78
148430	Montgomery, Robert A	45.92			45.92
151021	Myers, Joseph M	260.19			260.19
152170	Matthews, Jefferie	77.36	100.00		177.36
152171	....do	10.00			10.00
151590	Martin, James R	262.44			262.44
151903	Mitchell, Thomas P	119.16	100.00		219.16
151170	More, John	8.01			8.01
151876	Marshall, Charles H. (alias Horace Jones)	21.66			21.66
152008	Miller, Daniel J		160.00		160.00
153111	Mosscrop, Thomas D	13.80			13.80
151172	Moffat, William S	52.86			52.86
152159	Maxwell, Allen	55.51			55.51
152160	....do	7.50			7.50
152471	Mahaney (or Mehana), Frederick H	78.16			78.16
152580	Madden, William A		100.00		100.00
152106	Myers, D. N	424.47			424.47
152536	Marriott, Madison (alias John Anderson)		100.00		100.00
152540	Moore, George J		100.00		100.00
152541	Miner, Charles L	3.30			3.30
152544	Marsh, Metcalf B		100.00	100.00	200.00
152960	Mandeville, John H	206.75			206.75
153753	Minot, William H		200.00		200.00
152149	Mabry, Charles		100.00		100.00
152955	Maxwell, Frederick J	63.65			63.65
153126	Millard, Reuben W		100.00		100.00
153765	Miller, Edmund		200.00		200.00
151164	Murray, John B	63.42			63.42
151579	Meek, Joseph T	6.96			6.96
152109	Miller, Thomas H. B	91.28			91.28
152571	Murphy, William	232.97			232.97
153800	Musselman, DeLafayette	127.88			127.88
152035	Matthews, Almeron S	7.15			7.15
152572	Mesick, Granvill S		100.00		100.00
153132	Moritz, George	282.39			282.39
167004	Mockridge, Abraham N	3.45	100.00		103.45
153806	Maxwell, David	75.11			75.11
153027	Manvel, Homer	140.38			140.38
18358	Morrill, James V		100.00		100.00
152489	Mudd, Joseph	186.04	100.00		286.04
152967	Macdonald, Thomas	275.84			275.84
151547	Marcum, Edward	49.40			49.40
153510	Martin, William			83.34	83.34
157833	Morrow, Elbert G	32.01			32.01
151888	Mason, Elihu H	189.59			189.59
153727	Miller, Edmund C	129.13			129.13
83170	Manhart, Joseph	66.88			66.88
152986	Montney, Charles	49.71			49.71
153103	Mitchell, Samuel		185.00		185.00
154321	Mastin, Cornelius Edwin	85.20			85.20
154643	Moore, Isaac	12.10	100.00		112.10

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	WAR DEPARTMENT—Continued.				
154644	Moore, Isaac	$10.00			$10.00
151987	Macklem, Matthew	59.83			59.83
154604	Mead, Sidney	18.74			18.74
125439	Moore, Jerry	28.90			28.90
151101	....do	5.00			5.00
153744	Marshall, John J	6.97			6.97
154806	Marsh, Orson		$100.00		100.00
154991	Martin, W. H. H	6.97			6.97
153824	Mayer, William B	206.78			206.78
154999	Morrow, Jesse	200.61			200.61
149664	Moorhead, William S	182.85			182.85
153822	Merrill, John H	133.16			133.16
154053	Mayberry, William B	471.10			471.10
155020	Mesnard, William	15.16			15.16
158510	Moore, Lewis	84.65			84.65
153463	Mercer, William M	32.24			32.24
154246	Martin, John F	132.29			132.29
155684	Mullins, Emil K		33.34		33.34
165036	Mason, Daniel W	21.46			21.46
154587	Mitchell, Elijah		18.75		18.75
154853	Monohan, Michael		100.00		100.00
170382	Moore, William	1,359.25			1,359.25
154818	Mozena, Thomas H	221.13			221.13
153890	Mock, James M	366.12			366.12
154586	Messmore, Aurelius B	213.78			213.78
154600	Myers, Reuben J	17.38			17.38
154733	Miller, Charles W	79.72			79.72
157743	Munday, Thomas		100.00		100.00
155437	Moseley, William L	96.05			96.05
155449	Morehouse, Emmet P	83.20			83.20
155451	Mather, Daniel S	20.97			20.97
155435	Manning, John S	378.81			378.81
153067	Miles, Eli	8.16	200.00		208.16
153068	Myers, Newton	58.44	120.00		178.44
154496	Morrison, Francis M		100.00		100.00
67583	Meek, Bazel D	27.28			27.28
154258	Martin, Royal	98.44	155.00		253.44
154259	Martin, Richard	32.07			32.07
155417	Montgomery, Arthur H	7.30		$50.00	57.30
155459	Malson, George			100.00	100.00
155555	Matthews, Thomas L	49.61	100.00		149.61
153894	Miller, Martin V	124.90			124.90
155469	Meachem, Samuel	174.67	75.00	50.00	299.67
155878	Moss, Nicholas F	310.27			310.27
153904	Miles, Jonathan R	40.83			40.83
156012	Macy (or Macey), Cyrus F	202.11	75.00		277.11
154253	Myers, John C	130.75			130.75
155571	Moore, John M	50.46			50.46
155978	Morgan, Cyrus B	63.34	100.00		163.34
155429	Mould, George	591.16		50.00	641.16
155700	Melchert, William	108.80		50.00	158.80
155850	Morgan, John W	101.53			101.53
155890	Marsh, James P	48.00			48.00
156122	Manuel, Joseph	26.04			26.04
156123	....do	5.00			5.00
154268	Myers, William A	373.19			373.19
155426	Matthews, David	125.23			125.23
155757	Marcy, Rufus W	150.53			150.53
155884	Mariner, John F	124.88			124.88
156204	Moss, John R	64.83			64.83
170662	Mitchell, Greenville M	160.94			160.94
153632	Moshier, John	2.12	100.00		102.12
155665	Murphy, William	79.11			79.11
155560	Mann, Charles W	20.05	10.00		30.05
155585	Montgomery, Alexander C		24.44		24.44
155699	Myers, Wm F	142.50			142.50
155730	Myers, David J	33.82			33.82
155848	Morrow, William		25.00		25.00
155958	Miner, Daniel I	28.58	15.00		43.58
155970	Mixer, William B		100.00		100.00
156203	Marvin, Cary	361.05			361.05

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	WAR DEPARTMENT—Continued.				
156287	Miller, Jacob	----------	$300.00	----------	$300.00
163802	Magruder, Daniel B	$33.79	----------	----------	33.79
155442	Malcolm, Horace H	17.86	----------	----------	17.86
155570	Marsters (or Marston), De Forest	146.04	----------	----------	146.04
155857	Meador, John H	53.30	100.00	$50.00	203.30
163488	Marcum, James	78.86	----------	----------	78.86
155742	Miskell, Michael	----------	41.50	----------	41.50
163770	Moses, Calvin C	202.55	----------	----------	202.55
153906	Mains, James	46.04	----------	----------	46.04
155994	Miller, John G	129.90	----------	----------	129.90
164192	Maze, James H	----------	20.00	----------	20.00
163725	Mitchell, Thomas	86.66	----------	----------	86.66
163843	Moore, George M	118.69	----------	----------	118.69
156728	Merrill, Henry T	----------	67.85	----------	67.85
156805	Marsh, Seth	73.56	----------	----------	73.56
163776	Miller, James Russell	----------	100.00	100.00	200.00
155875	Madison, Relly	185.70	----------	----------	185.70
163790	Martin, Sylvester H	77.73	----------	----------	77.73
164658	Miller, George W	309.89	----------	----------	309.89
164276	Miller, Joseph R	79.68	----------	----------	79.68
165056	Martin, Tyler	----------	160.00	----------	160.00
164665	Meyers, Charles W	20.00	----------	----------	20.20
164181	Martinot, William A	88.82	----------	----------	88.82
163822	Mitchell, Thomas C	59.44	----------	----------	59.44
163713	Morton, John	136.25	----------	----------	136.25
164615	Mans, John A	52.51	----------	----------	52.51
147753	Morse, Isaac C	165.87	----------	----------	165.87
163649	Marland, William	39.15	----------	----------	39.15
163647	Morse, John N	34.54	----------	----------	34.54
163645	Moulton, Alvin R	9.60	----------	----------	9.60
164692	Murdock, Luke H	35.53	100.00	----------	135.53
163832	Mandley, John	----------	48.36	----------	48.36
88940	Miller, John	5.18	----------	----------	5.18
155986	Matherly, Banister G., jr	59.19	75.00	50.00	184.19
164259	Monfort, Elias R	17.20	100.00	----------	117.20
163486	Martin, Marion	103.38	----------	----------	103.38
155998	Moore, Eliphalet N	313.10	----------	----------	313.10
165145	Magloir, Louis	13.54	----------	----------	13.54
165146	------do	1.50	----------	----------	1.60
82430	Merrill, Chandler R	197.14	----------	----------	197.14
163651	Moran, John F. (*See* John Freeley.)				
164619	Mallory, Hiram	278.98	----------	----------	278.98
154813	Middaugh, Randolph H	57.60	----------	----------	57.60
155443	Murray, Andrew	65.00	----------	----------	65.00
163783	Macfarlane, John G. C	32.07	----------	----------	32.07
155698	Moore, John	44.12	----------	----------	44.12
155737	Moog, Peter	440.02	100.00	100.00	640.02
156628	Miller, Milton	87.07	----------	----------	87.07
164606	Mershon, Thomas J	162.61	----------	----------	162.61
164668	Miller, George D	----------	82.00	----------	82.00
164681	Moler, Elias	42.99	----------	----------	42.99
164682	May, Milton	119.07	----------	----------	119.07
164690	Mann, Edward B	143.47	----------	----------	143.47
164785	Mitchell, William	118.88	----------	----------	118.88
162122	Miller, Gilbert	3.67	----------	----------	3.67
152327	------do	.41	----------	----------	.41
165821	Markley, Martin V	174.51	----------	----------	174.51
166131	Myers, William R	57.19	----------	----------	57.19
165013	Mount, William P	----------	235.00	----------	235.00
164766	Mottinger, Samuel	193.87	----------	----------	193.87
166212	Mitchell, John M	----------	----------	10.52	10.52
164269	Mason, William B	92.80	----------	----------	92.80
173096	Moran Francis	160.05	----------	----------	160.05
165082	Mohr, Wm. (*See* Stecher, Wm.)				
123580	Merritt, Henry	2.07	----------	----------	2.07
156301	Mainzer, Jacob	141.64	----------	----------	141.64
105758	Miller, David	102.40	15.00	----------	117.40
168118	Miner, William H	60.70	----------	----------	60.70
164432	Musgrave, John C	219.49	155.00	----------	374.49
153396	Mincen, William J	20.63	----------	----------	20.63
164717	Marlatt, Thos	4.22	100.00	----------	104.22

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
165819	Moores, Archibald	$478.48	$100.00		$578.48
165818	Moores, James A	110.28			110.28
164714	Moonert, Augustus J	92.38			92.38
164429	Mosier, William F	20.66			20.66
164713	Mellinger, Christianus	16.64			16.64
164712	Monroe, Alfred H		75.00		75.00
155988	Malone, William R	123.36			123.36
165813	May, Solomon	62.87	120.00		182.87
165831	Miller, James F	58.32			58.32
165841	Miller, Joshua		33.34		33.34
164810	Moore, Daniel D	145.85		$50.00	195.85
165202	Merrill, Wellington	129.18	55.00		184.18
163850	Mathis, Jesse B		2.90	50.00	52.90
164688	Messinger, C. H	11.20			11.20
165883	Metger, Nicholas		100.00	100.00	200.00
163670	Mathews, Osmond W	47.14			47.14
163836	Mitchell, Logan B	162.65			162.65
165998	Meyer, Bernard	72.98			72.98
156209	Mahony, Timothy	1,282.99			1,282.99
165993	Murta, Joseph E	29.30			29.30
164730	Miller, John		100.00		100.00
165783	Meeker, Silas A	43.72			43.72
155001	Miller, Greenberg	224.34			224.34
166136	Morrow, John F	21.86	100.00		121.86
166384	Matthews, Robert R	246.40	175.00		421.40
166227	Maris, James		82.17		82.17
165135	Morris (or Morrison), Joe	11.46			11.46
165140	——do	1.27			1.27
165143	Moore, New York	71.92	300.00		371.92
165144	——do	10.00			10.00
166118	Manuel, Nora (or Noah)	4.45			4.45
166119	——do	.50			.50
166982	Meszaros, Emeric	163.58			163.58
165928	Marshall, Lorenzo	84.00			84.00
166010	Moore, J. Owen	89.36			89.36
165923	Marsh, Luther M	121.62	33.33		154.95
167334	Morgan, Nathaniel		100.00		100.00
156940	Mathey, Edward G	16.79			16.79
165846	Mattox, Edmund A. (or Asbury)	31.20	100.00		131.20
165835	Myer, Frederick W	65.92			65.92
164446	Manuel, Alexander H	96.63			96.63
165997	Merritt (alias Holmes), William H	52.00			52.00
167305	Meily, Luther M	30.28			30.28
166248	Marshall, George	23.94			23.94
165844	Miles, William	10.72			10.72
166990	Murray, John K		100.00		100.00
166726	Moe, Robert B		100.00		100.00
168094	Miller, Richard K	255.88			255.88
163687	Maddocks, Alexander H		100.00		100.00
165466	Maxson, Alvin M	310.35	100.00		410.35
166655	Maxwell, James C	242.54			242.54
166670	Mitchell, James L	204.55			204.45
166681	Marlin, Kersey S	46.57	100.00		146.57
166509	Martin, James			50.00	50.00
166153	Munson, Franklin A	113.78			113.78
164437	Madron, John	66.16			66.16
167336	Morgan, Nathaniel	17.92	66.66		84.58
167898	Moore, Edward B	401.86			401.86
168134	May, Franklin W	219.95			219.95
168080	Mullen, Carr	12.53	100.00		112.53
168081	——do	10.00			10.00
166682	Marcum, John	42.00	100.00	50.00	192.00
167309	Moore, David H	107.24	100.00		207.24
167783	Maguire, Daniel D	107.57			107.57
166439	Mowers, Lewis H	4.77			4.77
166134	Major, John C	62.72			62.72
97081	Murphy, Milton	8.13	100.00		108.13
167849	Middleton, Harry	85.23			85.23
167850	——do	7.50			7.50
167597	Mullins, Jas. M	74.10	25.00		99.10
168491	Myers, Wm	484.38			484.38

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
167602	Magowen (or McGowan), Geo. W	$30.76			$30.76
167908	Miller, Stephen	25.39			25.39
168497	Maxwell, Robert		$76.74		76.74
165422	Mills, Alexander D	78.97			78.97
167372	Moore, James W		40.00		40.00
168100	Mallory, Luther	63.00			63.00
167605	Martin, Thomas E	51.13	75.00	$100.00	226.13
167879	Murray, John	78.11	10.00		88.11
167604	Mulder, John H	12.07			12.07
154314	Mallory, Egbert M	17.33			17.33
167323	Markbreit, Leopold	77.63	100.00		177.63
167601	Moberly, Charles W	74.40			74.40
168545	Manigo, Wambo	4.30	100.00		104.30
168546	——do	10.00			10.00
167594	Macy, Theoderick J	88.18			88.18
167911	Moler, Leonidas S	168.75			168.75
156735	Malony, Edward	213.46	160.00		373.46
167396	Mengel, William H	15.84			15.84
169139	Morris, William M		100.00		100.00
169133	Montgomery, Homer	44.49			44.49
169351	Mathews, George W		190.00		190.00
169352	——do		10.00		10.00
154479	Mitchell, Thomas H. B	92.70			92.70
169893	Martin, Levi	409.80			409.80
167902	Markham, John J	158.24			158.24
168390	Murphy, Percival	86.24	300.00		386.24
167354	Mitchell, Gilbert	252.10			252.10
167808	Maxwell, Edward J	88.42			88.42
151152	Marshall, Edward M	195.03	100.00		295.03
173194	Magee, Bernard	19.40			19.40
169220	Munger, Lewis C	29.20			29.20
168083	Mowden, Emile	5.31			5.31
168084	——do	.59			.59
167234	Murphy, William C	55.73			55.73
168144	Miner, Turin S	231.78			231.78
168803	Maeder, Robert		200.00		200.00
167781	Middleton, Orlando F	651.10			651.10
170141	Murray, Mat			90.00	90.00
170142	——do			10.00	10.00
168102	Miner, John B	56.12	100.00		156.12
174591	Melzer, Otto	215.33			215.33
168794	Morrison, Abisha L	159.03			159.03
168529	Miller, David R	71.75			71.75
169150	Morrison, James C			50.00	50.00
168806	May, George A	110.72			110.72
170149	Mason, Jefferson		90.00		90.00
170150	——do		10.00		10.00
169606	Mosher. (*See* Moses Bolis.)				
164056	Macauley, Orlando H	44.11			44.11
169884	Moore, Lawrence	4.72		50.00	54.72
170614	Morgan, Albert L		100.00		100.00
170222	Maxson, Darwin E	79.79			79.79
169159	Miller, Peter	160.94			160.94
170394	Martin, William T	91.23		50.00	141.23
170431	Metzger, James	76.10			76.10
167249	Moffatt, Alvah P	58.12			58.12
169629	Matzenbacher, George		113.04		113.04
170611	Murphy, Denis J. F	59.43			59.43
170228	Mulholland, Eleazer	87.09			87.09
169404	Mosely, Henry C	37.99	33.34		71.33
171135	Miller, Edward		94.21		94.21
171251	Miles, Emory		80.00		80.00
171252	——do		7.50		7.50
170379	Maguire, John	149.72			149.72
167385	Moore, Robert W	35.04			35.04
165880	Mills, William W	45.90			45.90
17894	Morrow, Samuel, M. D	110.64			110.64
170169	Myers, William	13.05			13.05
170170	——do	1.45			1.45
170167	Mitchell, George	13.20			13.20
170168	——do	1.47			1.47

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
161822	Miller, James C	$48.80			$48.80
167360	Miller, John H	33.03			33.03
170226	Marshall, Edward P	3.19	$100.00	$100.00	203.19
169913	Moore, Thomas	16.13	100.00		116.13
168527	Martin, Samuel D	178.26			178.26
169916	Merrill, George H	27.12			27.12
171259	Murray, Patrick	7.06	60.00		67.06
171260	——do	7.50			7.50
171504	Minks, Willis		91.26		91.26
171505	——do		7.50		7.50
158968	Mathews, George	259.98			259.98
167371	Miller, Joseph D	15.38	90.00		105.38
170243	Merrell, Henry P	64.23			64.23
170627	Mattison, James	17.16			17.16
170054	Maulding, Daniel M	142.87			142.87
171145	Murphy, Cincinnatus	3.54	33.33		36.87
172014	Montgomery, William		135.00		135.00
172295	Meier, William	61.62	15.00		76.62
172017	Mountain, Walter S	249.32			249.32
166076	Martin, Harvey	46.64			46.64
166197	Masterson, Patrick	6.06			6.06
171545	Marble, Edward A	25.08		50.00	75.08
171941	Middleton, Daniel		90.00		90.00
171942	——do		10.00		10.00
172358	Middleton, Samuel	58.17		100.00	158.17
172359	——do	10.00			10.00
172054	Martin, John F		200.00		200.00
166080	Murphy, Albert	178.22			178.22
172296	Murphy, John	5.65	200.00		205.65
171553	Mumford, Lafayette	100.24	30.53		130.77
171560	Mamm, Edward	2.30	14.28		16.58
172222	Meiswinkel, Julius	102.56			102.56
167878	Mather, David (alias John Welch)		160.76		160.76
172156	Moats, Benjamin	72.25			72.25
171480	Mahoy, Joseph	305.55			305.55
172232	Mars, Thomas H	135.69			135.69
172185	Miller, William H	80.07			80.07
171982	Merchant, Francis	148.51		50.00	198.51
172142	Morris, Van B	19.15		50.00	69.15
171204	Merrick, Benjamin W	42.79			42.79
172338	Markham, Jeffrey	10.60			10.60
172339	——do	1.18			1.18
171554	Markey, James H. (alias J. J. Henry)	1.38	100.00		101.38
172340	Miller, Edward	13.11			13.11
172341	——do	1.46			1.46
172336	Means, Franklin	13.18			13.18
172337	——do	1.46			1.46
171530	Monroe, James	9.06			9.06
172331	——do	1.01			1.01
170403	Mackellar, Robert F	116.66			116.66
171207	Moynahan, James	98.56			98.56
172895	Montgomery, Peter D	206.51			206.51
172574	Manning, John L	123.93			123.93
172033	Moore, John W	40.62			40.62
172151	Means, Thomas H	35.87			35.87
170080	Morrison, James R	158.10			158.10
166206	Moranville, Daniel	28.50	200.00		228.50
172590	Morton, Thomas. (*See* John J. McDonald.)				
177573	Maize, William W		20.00		20.00
166072	Meyer, George W	158.11			158.11
156005	Miner, Dorm A		33.33		33.33
177354	Meriday, John H. (alias Courtland Steward)	94.98	375.00		469.98
177355	——do	10.00			10.00
176936	Morris, Daniel	45.07			45.07
179921	More, Ira	281.02			281.02
171603	Machen, William W	34.17			34.17
177143	Markle, John E	217.84			217.84
173132	Marshall, Hugh		100.00		100.00
173099	Morris, Thos. E	118.38			118.38
172853	Mason, Royal M	20.57			20.57

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	WAR DEPARTMENT—Continued.				
171991	Mooney, Patrick	$16.08	$100.00		$116.08
173378	Mitchell, Frank	11.39			11.39
173379	do	1.27			1.27
172313	Morgan, James T	101.33			101.33
172310	Murphy, Charles V. C	121.83			121.83
172610	Monday, Stephen S. (alias Sephen Smith)		195.19		195.19
172002	Mott, James J. (alias George E. Monroe)	12.27	75.00		87.27
173109	Murphy, Isaiah C	225.36			225.36
171904	Miller, Wilson S	39.90			39.90
171998	Miller, Ephraim T	10.53			10.53
171610	Mathison, Joseph	11.97			11.97
171606	Miller, Michael	81.00		$50.00	131.00
172777	Maxwell, Norman J	124.34			124.34
172732	Majors, Benjamin L	14.00			14.00
167635	Mabie, George	.44	200.00		200.44
172004	Moore, Nathan	101.33	100.00	100.00	301.33
173114	Moore, John	184.80			184.80
172751	Marshall, Thomas G	2.11	33.34		35.45
173496	Miller, Levi	18.62			18.62
173638	Mack, Lewis (or Louis)	6.27			6.27
173639	do	.70			.70
173819	Murray, Peter	4.39	33.33		37.72
173820	do	5.00			5.00
173404	Mitchell, Israel		71.00	50.00	121.00
173405	do	1.54	8.46		10.00
173471	Meeker, Henry M		100.00		100.00
175461	Mark, George M	226.59			226.59
173474	Martin, Thomas	4.18			4.18
173479	Martin, Luther	75.50	240.00		315.50
172201	Miller, J. Frank	74.74			74.74
172753	Moore, William		100.00		100.00
167642	Mosher, Marcellus	121.06			121.06
173670	Meyer, Herman A	276.76			276.76
174132	Minier, Francis P	81.97			81.97
168087	Mosely, Mathew		239.22		239.22
168088	do		10.00		10.00
164629	Mathis, Pleasant S	92.21			92.21
165406	Mitchell, Washington		59.99		59.99
171230	do	.82	6.68		7.50
168174	Misklegh, Thomas	6.19			6.19
172147	Mullineaux, John	53.26			53.26
172153	Muldoon, John	11.27			11.27
164958	Mehlman, Adam		42.45		42.45
141106	Miller, Alexander J	18.99			18.99
170052	Marshall, Samuel L	302.29			302.29
173130	Miller, Henry M	117.86			117.86
171999	Mayer, Adolph H	393.88			393.88
169919	Myer, Elbanis C	255.00			255.00
173172	Monger, Nathan A	42.92	15.00		57.92
174135	Muma, Charles A	18.13			18.13
166207	Moulton, Eliphalet P	24.10			24.10
167038	Middleton, Moore (alias Milton Moore)	8.04			8.04
167039	do	.89			.89
154049	Menton, John N	24.09			24.09
168145	Moloney, John B		160.00		160.00
172126	Muehlhausen, Charlie		200.00		200.00
174239	Mack, George	38.32			38.32
174240	do	5.00			5.00
173624	Madison, Robert	9.06			9.06
173625	do	1.01			1.01
172783	Martin, Robert N			50.00	50.00
167647	March, Theodore T	3.74	200.00		203.74
173702	Myers, Henry K	113.98			113.98
172283	Mills, Andrew J	269.07			269.07
171976	Mungerson, John F	63.25			63.25
173692	Miller, Victor D	143.38			143.38
172077	Miller, Frank E	45.05			45.05
173483	Moore, Cyrus B	153.20			153.20
172869	Mitchell, George W	8.06			8.06
173759	Mitchell, Alexander	24.44			24.44
173433	Miller, John C. C	84.72			84.72

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	WAR DEPARTMENT—Continued.				
173437	Malott, Francis W	$5.42	$200.00		$205.42
174612	Marlow, Anderson	123.73	195.00		318.73
174613	....do	10.00			10.00
174974	Morgan, Sid O	106.83		$50.00	156.83
174178	Morgan, John H	74.09	100.00		174.09
173500	Moore, Webster P	67.22			67.22
173792	Megrue, Ambrose R	104.00			104.00
147222	Mann, James L	68.91			68.91
148347	Mott, Jacob C	9.70	71.45		81.15
174906	Maze, Peter	8.94			8.94
175097	Minich, Lazarus	40.42	33.33		73.75
174046	Murdock, Thomas C (or Thomas Davis)	60.35	75.00		135.35
174190	Moore, James K	51.81	100.00		151.81
173681	Merrill, Stevens W	121.90	100.00		221.90
111314	Mathews, Benton A	17.16			17.16
173170	Martin, Hiram B	155.64			155.64
163029	Merriam, Rufus N	8.63			8.63
164012	Mullery, James W	53.59			53.59
173800	Miller, George A	154.06			154.06
174189	Martin, Charles D	104.46			104.46
172736	Mason, John		110.00		110.00
174223	Miller, York	8.05			8.05
174224	....do	.89			.89
172792	Moore, Josiah H	447.13			447.13
174841	Mott, George F	221.16			221.16
173761	Mason, John	46.25			46.25
174196	Martin, Frederick	9.32	100.00		109.32
173676	Morehead, Homer C	212.81			212.81
175025	Morris, Robert S	126.36			126.36
172801	Morse, Chester S	68.66			68.66
174064	Martin, Nathan K	17.27			17.27
166879	Malone, Thomas	3.54	85.00		88.54
165269	Martin, Israel W	7.35			7.35
167021	Mason, Hampton	127.26	100.00		227.26
167022	....do	10.00			10.00
178080	Meservey, Charles C	45.70	100.00		145.70
115245	Must (or Musk), Lewis	68.46	100.00	50.00	218.46
175081	Miller, Henry	17.78	85.00		102.78
175021	Millar, Monroe	24.24			24.24
168672	Marks, George A	3.37			3.37
174980	Miller, George	91.55			91.55
169080	Massey, Andrew T	10.75			10.75
166943	Miller, John B	.86	25.00		25.86
167543	Moore, Patrick	14.64			14.64
168952	Mumm, Gotfried	5.63			5.63
167686	Montgomery, David C	3.91			3.91
163751	Moore, Eugene W	100.85			100.85
165570	Morse, James	7.77			7.77
174403	Morsch, Johann	26.66	100.00		126.66
174194	Morris, Edward M	821.87			821.87
174158	Murphy, Hugh	37.44	225.50		262.94
166638	Miles (or Myers), Marceline	10.24			10.24
176494	....do	1.14			1.14
167665	Mardis, William K	4.07			4.07
169296	Markley, Benjamin	3.87			3.87
172740	Miller, Henry	34.16			34.16
167037	Mitchell (alias Richardson), James	8.93			8.93
168175	Manion, Thomas	5.65			5.65
172056	Moore, John M		300.00		300.00
174157	Manser, Joseph	1.28	100.00		101.28
174978	Meigs, George P	25.33	85.00		110.33
146460	McKinzie, David	13.00			13.00
154316	McFarland, Daniel D	23.68			23.68
155781	McKnight, Adam	251.95			251.95
150170	McKitrick, Samuel	40.73	100.00	100.00	240.73
147308	McNairy, Richmond	81.65	300.00		381.65
147309	....do	10.00			10.00
147287	McNeil, Abraham	50.62	100.00	100.00	250.62
148268	McKee, George W	54.00	50.00	50.00	154.00
150184	McKinney, A. Lawrence	343.99			343.99
143812	McPherson, Elias B	55.61			55.61

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
90422	McCorkhill, Horatio C	----------	$100.00	----------	$100.00
146144	McCrath, John W	$95.17	----------	----------	95.17
148287	McGregor, Alexander	11.26	75.00	----------	86.26
148393	McCoy, Henry C	61.23	----------	----------	61.23
147766	McCann, James D	104.31	----------	----------	104.31
147992	McWilliams, John	19.67	----------	----------	19.67
148317	McDonald, John. (*See* Rankin Love.)				
138619	McCabe, Patrick	234.09	----------	----------	234.09
147343	McMillin, Prosser	5.86	25.00	----------	30.86
148534	McKinney, Greenup A	----------	100.00	$100.00	200.00
148561	McKnight, David M	3.54	----------	50.00	53.54
148373	McBlain, Samuel	90.38	----------	----------	90.38
111244	McKinney, Josiah	64.60	----------	----------	64.60
125067	McClelland, Wesley	167.36	100.00	----------	267.36
149015	------do	10.00	----------	----------	10.00
147786	McCausland, William	85.73	----------	----------	85.73
147799	McFadden, George	227.31	----------	----------	227.31
147017	McReady, Frederick B	297.90	----------	----------	297.90
149058	McIntosh, William	8.40	210.00	----------	218.40
149753	McClanahan, James	8.23	100.00	----------	108.23
149124	McClung, James H	55.99	----------	----------	55.99
157848	McMillan, Thomas B	18.94	----------	----------	18.94
147194	McKenzie, George T	171.57	----------	----------	171.57
148443	McClelland, William	94.83	----------	----------	94.83
156321	McDonald, George F	37.67	----------	----------	37.67
149070	McKeogh, Thomas	51.65	----------	----------	51.65
148573	McCleary, Samuel J	----------	100.00	----------	100.00
151095	McCallum, Ky (or Kye McCullom)	----------	185.00	----------	185.00
151096	------do	----------	10.00	----------	10.00
148024	McLaughlin, John	70.66	----------	----------	70.66
150843	McClure, Samuel M. P	135.99	----------	----------	135.99
151553	McElrea, William G	167.72	100.00	----------	267.72
150805	McKnight, Henry	----------	----------	50.00	50.00
150430	McClenahan, John	24.70	----------	----------	24.70
150482	McCarthy, John W	----------	60.01	----------	60.01
152954	McCallum, Michael A	502.28	----------	----------	502.28
149149	McQuade, John A	85.49	25.00	----------	110.49
147221	McFarland, James A	80.40	----------	----------	80.40
150422	McConaughy, Samuel	55.04	----------	----------	55.04
150868	McClanahan, John W	79.56	----------	----------	79.56
148420	McCormack, Albert	4.50	----------	----------	4.50
151565	McIsaac, Patrick	169.35	----------	----------	169.35
151617	McKay, John	21.08	----------	----------	21.08
152075	McNeil, Isaac	126.58	----------	----------	126.58
152117	McClary, Robert	50.64	75.00	----------	125.64
151586	McAndrew, John	30.20	----------	----------	30.20
151893	McGinnis, Neriah N	----------	----------	100.00	100.00
152472	McCane, Samuel	187.34	150.00	----------	337.34
152522	McAlpine, William T	21.41	----------	----------	21.41
153163	McFadden, William	151.63	100.00	----------	251.63
153164	------do	10.00	----------	----------	10.00
152130	McNaught, Robert	215.93	----------	----------	215.93
152566	McMillen, Albert W	32.38	----------	----------	32.38
167380	McRoberts, William B	----------	10.56	----------	10.56
167381	McRoberts, Barton	4.84	33.34	----------	38.18
152161	McCarr, Henry	188.61	----------	----------	188.61
152162	------do	10.00	----------	----------	10.00
152597	McGinnis, Owen G	----------	200.00	----------	200.00
152498	McNary, Robert B	6.52	----------	----------	6.52
153009	McClure, Alexander	38.52	56.22	----------	94.74
153123	McHenry, Charles	157.27	----------	----------	157.27
151611	McDonald, Alexander J	----------	100.00	----------	100.00
152156	McKinney, Perry	177.90	100.00	----------	277.90
153142	McGrane, John	128.25	----------	----------	128.25
151538	McKanna, Peter	----------	100.00	----------	100.00
153721	McHugh, John H	52.50	----------	----------	52.50
153048	McFadden, John. (*See* John Richardson.)				
151014	McCormick, Richard	75.28	----------	----------	75.28
152144	McGee, William H	44.27	----------	----------	44.27
154593	McGowan, Peter	----------	100.00	----------	100.00
150398	McGuire, J. Horace	92.59	----------	----------	92.59

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
154791	McClay, James M	$64.03			$64.03
151147	McNeil, Floyd A		$35.00		35.00
152097	McAtee, Edward	77.22	185.00		262.22
152485	McCord, Thomas F	8.80			8.80
153054	McCormick, James	13.65	50.00		63.65
153750	McKee, Thomas	12.81			12.81
154583	McAlexander, William L	21.10			21.10
162863	McNeil, Quincy	13.95			13.95
162857	McSherry, Peter	11.27	100.00		111.27
155156	McGowan, Samuel	61.62			61.62
153732	McConnell, David W	53.46			53.46
154488	McDonald, Michael	12.03			12.03
154849	McCarty, John	105.10			105.10
150996	McClellan, George D	86.81			86.81
155180	McComas, Charles C	64.98			64.98
155239	McClure, Hugh	38.34			38.34
155702	McCord, Thomas T	290.13			290.13
155254	McClure, James H	6.29			6.29
154264	McCormick, Leander C	21.70			21.70
154267	McCormick, Isaac W	301.63			301.63
155844	McElroy, David L	103.11			103.11
163059	McManning, Milton	8.27			8.27
152323	——do	.92			.92
162964	McCormick, James H	5.13			5.13
166003	McCauley, Patrick H	26.03			26.03
163720	McKay, Hiram	149.61	100 00		249.61
154256	McGowen, William S	211.52		$50.00	261.52
156732	McKemy, John. (*See* Kenny, ——.)				
155854	McKinney, James J	119.41			119.41
155561	McCoy, William	18.56			18.56
155743	McCafferty, Presley	61.31			61.31
155736	McGee, John W	37.09	75.00	100.00	212.09
155774	McCurdy, Samuel O	115.00			115.00
163797	McCoy, Joseph E	22.29		50.00	72.29
163501	McCabe, Andrew		20.00		20.00
163495	McCoy, Daniel W	357.75	100.00		457.75
156917	McQuilkin, Robert	204.97			204.97
156621	McNaughton, James R	87.64			87.64
164161	McGuire, John F	10.00			10.00
164165	McDade, Alexander	155.95			155.95
163887	McNarey, Marshall	5.90	61.67		67.57
163888	——do		5.00		5.00
163889	——do	5.00			5.00
164676	McComb, Noah A		200.00		200.00
156021	McLaughlin, Jacob	105.99			105.99
163686	McKenzie, Mathew	30.00	75.00	50.00	155.00
164623	McMahon, Oliver C	38.94			38.94
164741	McNaull, John	66.71			66.71
164756	McGaughy, William	83.85			83.85
164802	McConnell, Joseph	109.00			109.00
165069	McMalcom, James			50.00	50.00
165108	McAllister, George W	113.09			113.09
149111	McFeely, Aaron	24.39			24.39
166203	McCrea, Edward D	92.79			92.79
153821	McBraine, James	224.15			224.15
172913	McCarty, Alonzo N	249.70			249.70
164729	McCune, Samuel	28.16			28.16
165894	McCarthy, John	148.55		50.00	198.55
165206	McNeil, Minard	8.26			8.26
165916	McLaughlin, P. H	30.31			30.31
136520	McClelland, Isaac	161.50	100.00		261.50
136521	——do	10.00			10.00
164807	McKee, Robert A	45.57	100.00		145.57
153448	McClellan, Harrison H	130.44			130.44
165048	McGannon, Thomas F	16.73			16.73
166240	McIntire, Alexander B	825.90			825.90
167611	McKevitt, Charles A	12.49			12.49
167217	McPherson, John W	59.83			59.83
164789	McMahon, William H	410.97	75.00	100.00	585.97
154490	McGinnis, John			100.00	100.00
166675	McClanahan, John N	4.20			4.20

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	WAR DEPARTMENT—Continued.				
174816	McConnell, David W	$232.47			$232.47
166398	McCurdy, W. H. (William)	202.92			202.92
166154	McGorray, Thomas	212.73			212.73
168156	McEvoy, John	75.63	$100.00		175.63
166406	McDonald, William P	4.30			4.30
167591	McDowell, Matthew R	47.79			47.79
166690	McKercher, Duncan	49.42			49.42
166683	McDaniel, Richard	95.38			95.38
168098	McInerny, Matthew	133.17			133.17
168372	McClure, Freeman	4.74	200.00		204.74
168373	——do	10.00			10.00
168538	McAllister, Charles	85.26	300.00		385.26
168776	McMeans, Caleb W	3.02	100.00		103.02
168495	McGinley, Ebenezer	55.13			55.13
155569	McLane, John B	47.57			47.57
168779	McCutchion, William S	210.90	200.00		410.90
167630	McNamara, John	16.21	100.00	$50.00	166.21
167384	McReynolds, Robert M	206.19			206.19
156950	McDonald, Crawford	58.83			58.83
164443	McBrown, James	5.65	100.00		105.65
168113	McGregor, Thomas B	56.87			56.87
168784	McVay, Joseph S	4.64	80.00		84.64
167805	McKeon, Thomas (alias Thos. Kelly)	338.00			338.00
168801	McCauley, Mark	170.12	100.00		270.12
156918	McIntyre, Augustine	49.94			49.94
170393	McDonald, Joseph M	60.55			60.55
170432	McQuiston, Robert	8.90	100.00		108.90
170861	McCaffrey, Cornelius	474.32			474.32
170857	McClarren, Jonathan J	27.99			27.99
171500	McMurtra Cason (or Cayson McMurtray)	218.88	100.00		318.88
171501	——do	10.00			10.00
166188	McNiff, James	15.16	100.00		115.16
170443	McMullen, Celestine	285.04			285.04
171538	McDonald. (*See* Rankin Love.)				
175526	McLain, Alexander	224.46	100.00		324.46
171193	McCollister, Charles E	60.13			60.13
170438	McKeel, Sandford	33.67			33.67
171572	MacDonald, Andrew N	233.18			233.18
172024	McCloskey, Frank	5.61			5.61
169930	McNeal, James B	63.24			63.24
172228	McLean, Archibald B	.54	200.00		200.54
171585	McCreary, Abram M	25.06			25.06
171468	McClaskey, Joseph O	327.97			327.97
166492	McAfee, Jacob	45.50			45.50
169163	McCurdy, William H	36.39			36.39
172188	McJellison, John	75.43			75.43
155344	McBride, Hiram		85.11		85.11
155345	——do		7.50		7.50
172158	McCoy, W. A	86.09			86.09
172139	McComas, Payton N	14.93			14.93
172138	McComas, George R	14.93			14.93
172189	McNevin, John	43.00			43.00
172590	McDonald, John J. (alias Thos. Morton)	42.04			42.04
161825	McCombs, Isaac	17.91			17.91
172193	McBride, Samuel J	188.04			188.04
172260	McClellan, James N	761.44			761.44
172318	McKinney, John	7.88	200.00		207.88
172197	McFadden, Shannon	108.82			108.82
173695	McClelland, Robert	531.85			531.85
172604	McGrath, John D	12.96	100.00		112.96
187517	McIntyre, John	33.10	100.00	100.00	233.10
171081	McCormack, Thomas	4.75			4.75
173427	McCarthy, John F	113.62			113.62
172006	McNeil, James	266.54	100.00		366.54
172916	McIntyre, William		100.00		100.00
173139	McMurtree, Robert L	322.02	240.00		562.02
162782	McLucas, Moody	7.24			7.24
171917	McCoy, Milton	68.14			68.14
173672	McNair, Frank L	41.71			41.71
174813	McNamee, James	27.59			27.59
173519	McVicker, George W	76.73			76.73

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	WAR DEPARTMENT—Continued.				
174831	McBride, Lanson H		$100.00		$100.00
173710	McCloskey, S. W	$152.78			152.78
172290	McKinstry, John	31.05			31.05
164151	McGill, John	251.60		$50.00	301.60
174099	McDonald, John		292.40		292.40
155061	McElroy, William B		5.47		5.47
178422	McKean, Henry B	167.81			167.81
174243	McBride (alias De Voe) Jacob	13.66			13.66
174850	McClelland, Silas W	4.48			4.48
152052	McKeen, Henry H	104.20			104.20
175456	McQueen, Alexander G	140.49			140.49
175068	McClure, William H	332.17			332.17
176611	McMillan, James W	71.08			71.08
173803	McConnell, Jacob	219.48			219.48
174641	McNair (or MacNear), George	57.53	300.00		357.53
174642	do	10.00			10.00
172917	McCoy, James	18.66			18.66
174573	McKinney, Alonzo	11.13	100.00		111.13
165393	McWilliams, Solomon	5.12			5.12
176492	do	.57			.57
154228	McGraw, Patrick	40.61	53.57		94.18
174162	McDonald, William H	18.01			18.01
155445	Norris, Omar P	195.55			195.55
155892	Nye, Joel W	386.36			386.36
147210	Newton, John L	67.31			67.31
146718	Noble, Daniel	16.26			16.26
146255	Nelson, Frank M	24.60			24.60
147001	Northrup, James F	6.71			6.71
135049	Nixon, George W	226.52			226.52
146099	Nichols, Nathan	95.15			95.15
147027	Niles, George A	71.33			71.33
147686	Newton, William	50.97			50.97
147646	North, Joseph		300.00		300.00
147752	Nugent, Edward	417.94			417.94
148487	Newell, Henry C		40.00		40.00
148378	Nichols, Samuel	90.23			90.23
150191	Norris, William H	70.79			70.79
150352	Niemeyer, Bernard H	129.28			129.28
148442	Neikirk, Eli F	62.67			62.67
149763	North, James W	164.45			164.45
164416	Nicholson, Zachariah	40.55	75.00		115.55
155901	Nussbaum, J. R. (or John Nuttree)	302.40	75.00		377.40
149815	Nottingham, Henry		90.00		90.00
149816	do		10.00		10.00
148851	Newman, John S	6.13			6.13
149574	Nerney, Richard A		145.00		145.00
148978	Noel, Henry B		225.00		225.00
150420	Newton, Joseph B	216.79			216.79
165876	Nelson, Franklin V	154.12			154.12
149137	Noyes, Edward L	61.77			61.77
149789	Nutting, Shepherd M		200.00		200.00
150955	Nixon, Edward S	208.85			208.85
151569	Nealey, Horace	59.80	100.00		159.80
150862	Nowlin, John W	13.30	50.00		63.30
151995	Newland, John T	11.62			11.62
150853	Norris, A. Wilson	294.81			294.81
151184	Nelson, Judson C	260.32			260.32
151120	Norton, George W	60.90			60.90
152992	Noyes, Kirke W	250.25			250.25
151181	Noonan, John G	113.22		50.00	163.23
152129	Nelson, James M. C	56.02			56.02
150986	Newbre, Guy	127.12			127.12
153437	North, Jacob		235.00		235.00
151146	Nichols, George S	28.31			28.31
152610	Nichols, Dennis	40.28			40.28
9721	Nix, John		100.00		100.00
152990	Newcomb, Lucius S	361.22			361.22
153100	Noack, William	22.08			22.08
153779	Nichols, Joel T	112.66			112.66
153742	Norris, John J		75.00	100.00	175.00
152099	Nye, John H	20.54			20.54

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	WAR DEPARTMENT—Continued.				
153883	Nash, Isaac	$121.15			$121.15
154210	Nibarger, James C	85.25			85.25
154334	Nichols, William D		$100.00	$100.00	200.00
153726	Neubacher, Joseph		98.00		98.00
155398	Newton, Jacob C	479.50			479.50
157834	Nobles, James T	28.81			28.81
166716	Nilles, Mitchel		100.00	100.00	200.00
154212	North, Alfred A	572.65			572.65
153097	Newman, Gideon E	593.10	40.00		633.10
153829	Nettleton, John F	42.32			42.32
160914	Nead, Jeremiah	20.60			20.60
155189	Neal, Jasper N	174.92			174.92
156149	Nelson, Harvey	90.80	300.00		390.80
156150	——do	10.00			10.00
155421	Nutt, James	47.21		50.00	97.21
156603	Nicoll, Sylvester D	154.84			154.84
155703	Near, Charles A	64.55			64.55
154266	Naden, James A		200.00		200.00
164179	Newton, Charles O	115.90			115.90
156620	Neighbor, Jay W	97.42			97.42
164694	Nye, Daniel H	1,278.04			1,278.04
165157	Nelson, Frank	9.98			9.98
165158	——do	1.10			1.10
153096	Norris, Oswald H	219.87			219.87
163178	Nichols, Gerrit S	136.00			136.00
164798	Newell, Robert T	184.38			184.38
165421	Napier, Charles	53.87	100.00	100.00	253.87
159072	Noblin, William	87.62			87.62
163663	Nichols, Robert C	21.66	85.00		106.66
166692	Nitte. (*See* Oliver N. Ross.)				
165053	Neal, Francis W	5.02	200.00		205.02
167295	Neff, Emanuel	20.80			20.80
163835	Nail, Julian	2.25		50.00	52.25
166235	Neighbor, David	65.66			65.66
165194	Norris, Edward	11.26			11.26
163867	Nichols, Martin W	95.20	75.00	50.00	220.20
166715	Nichols, Franklin P	121.44			121.44
166662	Nash, Daniel W		100.00		100.00
163866	Nichols, John		74.47	50.00	124.47
163829	Newnan, Albert		300.00		300.00
173104	Newberry, Walter C	184.65			184.65
167307	Nichols, Edwin	146.36			146.36
167005	Norris, Josephus		100.00		100.00
168500	Newmeyer, George W	102.41			102.41
167920	Nieberg, Theodore	216.42			216.42
163863	Norris, Alvin D	401.36			401.36
168531	Nard, Henry		278.00		278.00
168532	——do		10.00		10.00
167239	Nelson, Seward C	78.76			78.76
167375	Nowlin, Pleasant		160.00		160.00
165845	Nix, Napoleon B	43.09	100.00		143.09
167888	Newstattle. (*See* Simon Suhler.)				
168787	Northcroft, James G	50.40	50.00		100.40
169376	Norwood, Andrew B	51.52			51.52
169860	Nyce, William	249.84			249.84
150541	Napier, Newton	6.99	13.34		20.33
165473	Norris, James M		175.64		175.64
169869	Northrop, Theodore F	60.91			60.91
170576	Nash Alexander	61.75	100.00	100.00	261.75
170577	——do	10.00			10.00
176017	Northup, Ira J	10.84			10.84
172173	Noble, William C		215.00		215.00
172094	Novinger, William		100.00		100.00
172964	Norris, John		90.00		90.00
172965	——do		10.00		10.00
172897	Nash, George I	2.28		50.00	52.28
172902	Neal, Carlton	193.86	100.00		293.86
172275	Neal, Joseph W	52.46			52.46
172064	Neel, John M	55.61			55.61
172774	Neville, Harry	176.31			176.31
172603	Noonan, Patrick H (or Patrick Nunan)	116.47			116.47

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
173821	Nichols, Henry		$99.28		$99.28
173822	——do	$9.28	.72		10.00
172137	Nash, Thomas G	21.64			21.64
174134	Nankamm, Carl	9.61	300.00		309.61
173766	Norris, Thomas B	19.75	25.00		44.75
171089	Norton, Thomas	17.53			17.53
174148	Neel, Nicholas			$50.00	50.00
174153	Nason, John		96.26		96.26
172925	Nixon, Edwin		100.00		100.00
174029	Nelson, Saml. G	44.05			44.05
174333	Nichols, John J	43.04			43.04
155744	Nichols, Granville	7.07	83.33		90.40
173801	Neeley, Andrew J		200.00		200.00
148588	Nutting, Henry S	261.64			261.64
174221	Nanzego (or Vanzego), Frederick	8.73			8.73
174222	——do	.97			.97
174643	Newell, Henry C		80.00		80.00
165409	Norris, Joseph	5.73			5.73
171249	——do	.63			.63
172086	Norton, Henry G	5.70	65.00		70.70
176506	Nutter, William H	1.34			1.34
162021	——do	12.09			12.09
169079	Nix, Edward	3.24			3.24
174952	Nash, William H	69.01			69.01
166640	Nelson, Leander	9.76			9.76
176498	——do	1.08			1.08
163974	Nolting, Frederick	4.70			4.70
166643	Norbert, Pierre	10.25			10.25
176500	——do	1.13			1.13
172146	Newhouse, Michael	17.43	22.22		39.65
145318	Orahood, James A	53.18	87.50		140.68
148366	Olmstead, Frank L	190.23			190.23
146864	Onmacht, Charles		110.00		110.00
146899	Owen, Richard	410.20			410.20
148376	Osmun, Clemmon	305.15			305.15
148877	Outcelt, John N	62.40			62.40
146109	Orr, John M	31.41			31.41
148384	Owsley, Benjamin F		210.00		210.00
147779	Osman, Moses	14.62			14.62
148269	Oliphant, Joseph B. F			100.00	100.00
149559	O'Connor, Richard	165.20			165.20
149761	Overton, Thompson	282.81			282.81
150492	Otis, George B	2.85	100.00	50.00	152.85
150916	Owens, Thomas L		75.00		75.00
150484	Otto, William		100.00		100.00
148982	Obermueller, Henry	23.44			23.44
164602	Overdear, John	397.49			397.49
150964	Olmstead, Irvin		75.00	100.00	175.00
131684	Oliver, Thomas H	20.96			20.96
151897	Oliver, John F	38.62			38.62
152474	Ogden, Joseph	124.11	200.00		324.11
152021	Osburn, John		200.00		200.00
151523	Oliver, John		33.34		33.34
153843	O'Hare, George W. (alias Wash. Hare)		90.00		90.00
153844	——do		10.00		10.00
152959	Olney, Corydon C	18.50		50.00	68.50
153818	Oaks, Isaac N	201.15			201.15
154571	Orr, William A	10.67			10.67
154723	Offley, John S		100.00		100.00
154727	Otis, George H	1.50	100.00		101.50
154498	Odell, George W	196.43	100.00	50.00	346.43
156128	O'Connell, Daniel. (*See* Dan. Adams.)				
155720	Osier, Cyrus M	27.23	100.00		127.23
155706	Osborne, Henry	132.69			132.69
155963	Oiler, William		160.00		160.00
160449	Osborne, William W	14.69			14.69
155420	Odwell, John T	201.50			201.50
156297	Ober, Levi	270.28	100.00		370.28
156715	Overbay, John	6.18	200.00		206.18
156001	Oettiker, William H	15.46			15.46
147732	O'Donohue, William	30.28			30.28

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
154863	O'Kane, James	$65.16	$100.00	----------	$165.16
164419	Oakley, Thomas B	4.20	25.00	----------	29.20
164263	Overturf, John	----------	100.00	$100.00	200.00
163760	Orr, Robert L	61.76	----------	----------	61.76
156737	Osborn, Benjamin F	280.07	----------	----------	280.07
165893	Owen, John	63.57	----------	----------	63.57
165888	Oppelt, Martin	8.88	200.00	----------	208.88
165436	Oberbeck, August	35.52	----------	----------	35.52
166413	Osborn, Thomas W	455.66	----------	----------	455.66
165075	Oliphant, John E	157.63	----------	----------	157.63
164635	O'Ferrall, Robert M	44.93	----------	----------	44.93
164640	O'Brien, Joseph W	98.45	----------	----------	98.45
164649	Overell, Joseph C	----------	135.00	----------	135.00
165977	Ogden, Tulleff A	----------	100.00	----------	100.00
166114	Outler, Paul	23.31	----------	100.00	123.31
166115	------do	10.00	----------	----------	10.00
164438	Ogle, Elisha	21.45	45.00	----------	66.45
165826	Owens, John	20.11	75.00	50.00	145.11
167893	Osborn, Hartwell	12.44	----------	----------	12.44
167624	Odekirk, Simon V	31.43	----------	----------	31.43
167325	Otto, Edward	----------	300.00	----------	300.00
167189	Onion, James M	126.87	----------	----------	126.87
167901	O'Leary, Thomas J	92.57	----------	----------	92.57
168508	O'Reiley, Charles	171.00	----------	----------	171.00
165823	O'Conner, William F	----------	25.00	----------	25.00
155983	Oaks, George J	25.07	----------	----------	25.07
169890	Ogden, Wm. L	9.00	----------	----------	9.00
171174	Osborn, Chas. A	320.33	----------	----------	320.33
169591	Ottmar, Joseph	261.58	----------	----------	261.58
170407	Osburn, Benjamin F	429.03	----------	50.00	479.03
169924	Overstreet, Charles D	51.84	----------	----------	51.84
171552	Oulaham, Richard	44.60	----------	----------	44.60
171562	Otto, Frank	18.73	100.00	----------	118.73
171907	O'Conner, Edward	----------	100.00	100.00	200.00
170646	Oller, Crawford C	.55	75.00	100.00	175.55
170072	O'Meara, Daniel J	30.15	16.67	----------	46.82
170618	Ogg, Amon L	182.56	50.00	----------	232.56
173811	Outlaw, Wright	14.23	300.00	----------	314.23
173812	------do	10.00	----------	----------	10.00
172195	Ober, John S	149.63	----------	----------	149.63
173642	Oldham, Henry	----------	90.00	----------	90.00
173643	------do	----------	10.00	----------	10.00
173648	Orndorff, Richard	87.46	100.00	----------	187.46
171608	Ottilie, Charles	44.12	----------	----------	44.12
165223	Osterman, Anthony	6.15	----------	----------	6.15
170493	Overpeck, Leander	133.38	----------	----------	133.38
165501	O'Brien, John M	42.21	----------	----------	42.21
174024	Odell, Newton J	77.05	----------	----------	77.05
173445	Olds, Henry H	295.00	----------	----------	295.00
17906	Olendorf, W. D	108.00	----------	----------	108.00
172821	Oates, Isaac	----------	67.50	----------	67.50
172822	------do	----------	7.50	----------	7.50
173770	O'Neal, George E	87.97	----------	----------	87.97
174836	O'Leary (or Leary), Dennis	----------	100.00	----------	100.00
175458	O'Blenis, Thomas J	155.53	----------	----------	155.53
170227	Oliver, John N	274.56	----------	----------	274.56
171167	Oakes, Henry	71.80	----------	----------	71.80
164684	Oliver, Joseph C	132.42	----------	----------	132.42
171916	Osbourn, Jackson	----------	50.00	----------	50.00
172718	Owens, Frank	4.59	----------	----------	4.59
176514	------do	.51	----------	----------	.51
175080	Oliver, Wm., Sixty-third Ohio Volunteers	92.80	300.00	----------	392.80
177125	Oliver, William, One hundredth Pennsylvania Volunteers	117.65	----------	----------	117.65
155965	Pfiffer (or Piffer), Charles W	6.92	75.00	50.00	131.92
146380	Pinckney (or Pinkins), Peter	11.46	----------	----------	11.46
146381	------do	1.27	----------	----------	1.27
146464	Perrine, Thomas M	206.29	----------	----------	206.29
146881	Patterson, James	40.59	----------	----------	40.59
147007	Patten, Charles E	94.88	----------	----------	94.88
146499	Preston, Addison W	34.05	----------	----------	34.05

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	WAR DEPARTMENT—Continued.				
145265	Potter, James J	$408.28			$408.28
147206	Patten, George W	46.46			46.46
147317	Patterson, De Witt C	49.23			49.23
83468	Preston, William H	165.22	$340.00		505.22
156600	Peters, Jacob	46.80			46.80
147296	Prince (or Clanton), Stephen	61.44	100.00		161.44
147297	——do	10.00			10.00
155024	Pinkerton, Joseph L	240.90			240.90
148027	Pifer, George D	39.95			39.95
150217	Perrine, Isaac	112.69			112.69
148028	Peale, James T	144.72			144.72
154665	Peterson, Walter	124.93	100.00		224.93
146025	Pierce, Charles L	348.19			348.19
142506	Patten, George H	63.59			63.59
147675	Pinckney, Samuel	25.51			25.51
147676	——do	5.00			5.00
146267	Peddle, William R	38.47			38.47
146150	Price, Egbert P		100.00	$100.00	200.00
146891	Pippenger, Daniel F	51.42	25.00		76.42
146892	Pickett, Joel W		200.00		200.00
145069	Punteney, Russell	84.24			84.24
146102	Poole, William	52.03			52.06
146467	Parker, James	45.05			48.05
126518	Panzera, Thomas	8.06			8.06
148280	Perry, James E	23.98			23.98
148367	Payne, James S	323.90		50.00	373.90
143945	Patier, Charles O	31.35			31.35
146022	Peck, Henry	21.94			21.94
147793	Paisley, Joel B	628.76			628.76
147719	Parker, Fithian		100.00		100.00
148289	Parrott, Josiah R	12.38			12.38
148364	Pew, George W. P	354.14			354.14
147656	Power, Mason H	18.46	100.00		118.46
147635	Patton, George B	72.72			72.72
148285	Parker, Lorenzo D	64.27	200.00		264.27
147736	Pierce, William, jr		33.33		33.33
148375	Prudhom, Charles	57.35			57.35
148380	Perry, Joseph N		300.00		300.00
148526	Parkes, Jesse	237.64			237.64
148882	Prescott, Alva R	62.86			62.86
148474	Pope, Isaac	26.40	100.00	50.00	176.40
148475	——do	10.00			10.00
148296	Pope, Warren W	6.96			6.96
148322	Peebles, Robert S	78.83			78.83
147224	Preuitt, Elias	36.97			36.97
148955	Phillips, Louis		66.66		66.66
148953	Parks, William A		33.34		33.34
147772	Potter, Harvey	33.75			33.75
147774	Peaslee, Luther L	8.25			8.25
148895	Pirtle, James F	16.41			16.41
148438	Parsons, John L	94.25			94.25
149034	Penick, Edward Y	42.35			42.35
52280	Perry, Asa T	22.05			22.05
148856	Parker, Benjamin	8.05			8.05
148859	Pert, Daniel S	4.77			4.77
148866	Perry, Albert H	21.08			21.08
148959	Pillers, Francis M		66.67		66.67
147800	Paige, Charles L	59.94	100 00		159.94
147783	Post, John F	413.32			413.32
148835	Pool, Francis W	12.49			12.49
149073	Packard, Samuel N	23.00			23.00
149104	Perry, George	235.69			235.69
149121	Pettit, John U	319.28			319.28
149646	Prince, Edward	189.06			189.06
149766	Pierson, John	39.60			39.60
147807	Parrott, George W	109.47			109.47
150201	Powers, Jonas	21.66			21.66
149107	Plummer, Samuel H	72.38			72.38
149622	Pettit, Eleazar W	4.26		50.00	54.26
141060	Palmer, Charles S	193.11			193.11
149648	Porter, David S	150 81	50.00		200.81

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	WAR DEPARTMENT—Continued.				
149082	Pomeroy, Henry			$100.00	$100.00
149808	Poree, Paulin (or Polin)	$160.30			160.30
149809	....do	10.00			10.00
150374	Pettijohn, Dyer B	837.93			837.93
150202	Patton, John R		$50.00		50.00
148016	Pierce, Erastus	42.00	100.00	100.00	242.00
149582	Phillips, Sanford			33.33	33.33
150222	Parkhurst, Abel	2.19	100.00		102.19
140692	Poock, Charles	187.60			187.60
147700	Powells, Cary		90.00		90.00
147701	....do		10.00		10.00
150379	Park, Sidney W	41.57			41.57
150368	Poe, Joseph G	67.80			67.80
148564	Paxton, Wilson N	38.06			38.06
149141	Pope, John F	56.35	100.00		156.35
151113	Packer, Morris	31.65	75.00	50.00	156.65
148026	Plumer, George W	11.96			11.96
150494	Pratt, James A		2.95		2.95
150922	Pruett (or Prewitt), John		200.00		200.00
148979	Prout, John		200.00		200.00
150164	Pharr, David		25.00		25.00
150429	Pettit, Samuel S	80.54			80.54
150848	Pickering, George A	212.12			212.12
150917	Pomeroy, George A	62.86			62.86
147730	Pollard, William		33.34		33.34
150499	Pierce, William A	65.71	100.00		165.71
150997	Pratt, Henry L		100.00		100.00
151071	Parker, John	16.03			16.03
151072	....do	1.78			1.78
151078	Pierre, Jak (or Jacques)	16.03			16.03
151079	....do	1.78			1.78
149790	Pals, John	27.79			27.79
151132	Page, Charles W	199.57			199.57
151160	Pinney, George C	799.45			799.45
149769	Pittman, Reason	24.40			24.40
152007	Payne, George M	74.40			74.40
150918	Powell, Thos. P. (*See* Thos. P. Jones.)				
151929	Palmer, Oscar	10.40	100.00		110.40
151930	....do	10.00			10.00
150943	Patterson, Daniel	315.80	100.00		415.80
148423	Pelmore, Joseph	4.50			4.50
4473	Peak, Frank		100.00		100.00
150947	Phelps, Melville	157.95			157.95
151210	Prather, Zenith R	162.24			162.24
151960	Pittenturf, Jacob C	65.09			65.09
151962	Plank, Jacob H	71.86			71.86
151973	Perkins, Horace T	1,323.12			1,323.12
151609	Powell, James		100.00		100.00
151620	Peabody, Daniel A		100.00		100.00
151630	Penly, Ephraim C		100.00		100.00
152473	Puckett, John M	146.78			146.78
150979	Pinkney, George H	221.05			221.05
151106	Parrish, William		110.00		110.00
151107	....do		10.00		10.00
165479	Parker, Charles	95.33			95.33
151583	Playter, Henry J	217.71			217.71
152535	Payson, Ebenezer F		100.00		100.00
151002	Pillars, Samuel		100.00		100.00
151166	Pettes, Frederick W	171.72			171.72
151179	Post, Edwin E		100.00	100.00	200.00
152119	Powers, Edward N	58.14			58.14
152534	Parker, George L		200.00		200.00
152594	Paul, Sylvester B	41.16	100.00	100.00	241.16
149577	Pettit, Alphonso	72.04			72.04
151532	Points, David	24.53	15.00		39.53
152958	Peck, Herbert D	77.50			77.50
152072	Pease, George W	27.92	35.00		62.92
87831	Poor, Henry		100.00		100.00
99543	Packard, Henry C. (alias Henry Carr)	77.78	100.00		177.78
151626	Pettis, Thomas	80.61	17.60		98.11
152532	Pendergast, Richard	748.91			748.91

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	WAR DEPARTMENT—Continued.				
151521	Phillips, David M	----------	$33.34	----------	$33.34
152548	Pratz, Frederick C. (alias Carl Weinburg)	----------	41.14	----------	41.14
150820	Pinson, Nashville	$8.85	100.00	$50.00	158.85
153141	Place, James E	93.57	----------	----------	93.57
151908	Phillips, Isaac C	96.58	----------	----------	96.58
153011	Paxson, Erastus B	464.96	----------	----------	464.96
153146	Peacock, John	155.08	----------	----------	155.08
153443	Pavy, Washington	----------	16.70	----------	16.70
153189	Pearson (or Pierson), Scott	114.84	----------	----------	114.84
166157	Payne, Eugene B	139.91	----------	----------	139.91
153028	Palmer, Walter A	----------	----------	50.00	50.00
153125	Pitt, George W	18.73	----------	----------	18.73
153717	Pindar, Benjamin S	40.33	----------	----------	40.33
153871	Porter, William C	20.57	----------	----------	20.57
152509	Plunkett, Silas P	41.39	----------	----------	41.39
143861	Polston, Joseph	14.40	----------	----------	14.40
152492	Pryor, Charles C	125.15	100.00	----------	225.15
150998	Penno, William A	----------	75.00	----------	75.00
154560	Page, Leartis B	----------	200.00	----------	200.00
154612	Powers, Joel A	344.15	----------	----------	344.15
154050	Pealer, Russel R	79.83	----------	----------	79.83
154236	Porter, Hardin	46.48	100.00	----------	146.48
154320	Perkins, Seymour H	21.60	----------	----------	21.60
154592	Plummer, Lyman J	----------	----------	50.00	50.00
153791	Provine, William M	111.33	----------	----------	111.33
153459	Penrose, John G	----------	33.33	----------	33.33
153730	Purdum, Nelson	29.04	----------	----------	29.04
154202	Persem, George	3.78	100.00	----------	103.78
153781	Patenode, Gregware (or Gregoire)	6.55	----------	----------	6.55
154045	Pile, John C	----------	100.00	----------	100.00
154324	Preston, Joel T	----------	210.00	----------	210.00
153740	Proctor, Benjamin F	11.15	----------	----------	11.15
154476	Peters, Payne E	18.00	----------	----------	18.00
30765	Porter, David	----------	100.00	----------	100.00
155000	Palmer, John A	45.88	----------	----------	45.88
155155	Phinney, Andrew	916.72	----------	----------	916.72
154609	Pennock, Francis E	115.00	----------	----------	115.00
153384	Pittman, John R	54.26	----------	50.00	104.26
154335	Patterson, James L	342.93	----------	----------	342.93
154616	Palmer, William	95.78	----------	----------	95.78
159791	Porter, Jesse	----------	187.64	----------	187.64
152316	------do	2.64	7.36	----------	10.00
153772	Phalen, George P	171.97	----------	----------	171.97
154717	Plummer, John W	29.98	----------	----------	29.98
154799	Pease, William H	137.00	----------	----------	137.00
154843	Perham, Salmon E	16.15	----------	----------	16.15
154216	Paul, Thomas	101.67	----------	----------	101.67
154244	Pace, Thomas N	114.77	----------	----------	114.77
154339	Phelps, John S	11.26	----------	----------	11.26
154720	Pritchett, Pleasant S	143.21	----------	----------	143.21
155003	Paulk, Jacob M	116.64	----------	----------	116.64
154731	Perry, Andrew T	----------	100.00	----------	100.00
154835	Plumer, William	54.34	----------	----------	54.34
155682	Powers, Wesley	7.46	----------	----------	7.46
155754	Plucker, Lucian H	24.94	----------	----------	24.94
155411	Parsons, Henry	68.11	----------	----------	68.11
155681	Peace, Leroy	29.46	----------	----------	29.46
155174	Parrish, Corydon C	26.51	----------	----------	26.51
155558	Pelton, Emory W	55.63	----------	----------	55.63
155766	Pine, William S	13.13	----------	----------	13.13
156192	Pease, Phineas	50.44	----------	----------	50.44
155763	Potter, Harry C	54.85	----------	----------	54.85
155836	Polsgrove, Henry P	----------	25.00	----------	25.00
155872	Price, Thomas P	80.39	----------	50.00	130.39
155688	Pernell, Lewis (alias Louis H. Purnell)	----------	33.33	----------	33.33
153399	Powers, Nelson P	85.30	100.00	----------	185.30
167799	Purdy, James H	117.68	----------	----------	117.68
75879	Porter, Samuel	215.04	----------	----------	215.04
154341	Prange, Charles W. D	26.87	----------	----------	26.87
155782	Peters, Henry W	81.87	----------	----------	81.87
166073	Poorbaugh, Philip	----------	100.00	100 00	200.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
154865	Pile, Morgan	$43.19	$15.00	----------	$58.19
152059	Pray, William	----------	86.84	----------	86.84
152066	Perkins, David M	444.85	----------	----------	444.85
154265	Perry, Gilbert K	55.72	----------	----------	55.72
155257	Pope, William A	----------	200.00	----------	200.00
155640	Phillips, John	122.14	100.00	----------	222.14
155775	Pettit, John F	399.67	----------	----------	399.67
155841	Priest, Nathaniel M	30.85	----------	----------	30.85
155883	Parker, John J	----------	----------	$100.00	100.00
156023	Patterson, William H	36.88	----------	----------	36.88
156200	Post, Philip Sidney	59.24	----------	----------	59.24
156202	Park, Edmund C	34.10	----------	----------	34.10
156208	Pike, Fred W	46.49	----------	----------	46.49
156290	Philles, William H	54.24	----------	----------	54.24
156592	Patterson, Martin V B	19.35	133.33	----------	152.68
156716	Potter, Leander H	301.40	----------	----------	301.40
163473	Plymesser, Samuel	43.12	----------	----------	43.12
163478	Patterson, John H	75.49	----------	----------	75.49
155404	Plimley, William	41.47	----------	50.00	91.47
155852	Peters, James A	----------	25.00	----------	25.00
163634	Palmer, Calvin J	88.68	55.00	----------	143.68
163732	Patterson, T. H	25.50	----------	----------	21.50
163774	Pool, William H	51.72	----------	----------	51.72
156690	Pettitt, Marcellus	4.33	100.00	----------	104.33
163721	Pummill, Leonidas H	46.39	----------	----------	46.39
164693	Pirtle, Alfred	131.80	----------	----------	131.80
163746	Prater, Lauford	13.10	----------	----------	13.10
165054	Powers, John S	----------	225.00	----------	225.00
164576	Philpot, David	----------	25.00	----------	25.00
163697	Pettengill, Almon L	52.73	----------	----------	52.73
156613	Pierce, Janes V. (or Volney J.)	82.11	----------	----------	82.11
164616	Palson, Henry H	35.55	----------	----------	35.55
129473	Probasco, John	----------	193.95	----------	193.95
156720	Powel, Charlesworth	163.28	----------	----------	163.28
163763	Potter, Philander K	224.16	----------	----------	224.16
164176	Paddock, Charles H	445.12	----------	----------	445.12
163676	Petteys, Stephen	104.11	----------	----------	104.11
156707	Pennington, James	195.43	----------	----------	195.43
156746	Pontius, Hiram	268.87	----------	----------	268.87
156748	Palmer, Alva H	232.33	----------	----------	232.33
156824	Pender, William H	----------	260.00	----------	260.00
164654	Parrish, Elza	----------	25.00	----------	25.00
164795	Parker, Cornelius J	20.93	50.00	----------	70.93
165412	Poser, Rudolph	11.66	----------	----------	11.66
165452	Poer, Robert F	----------	----------	50.00	50.00
163621	Partridge, Larned	----------	50.00	----------	50.00
165181	Paul, Benjamin G	367.17	----------	----------	367.17
165891	Palmer, John H	79.19	----------	----------	79.19
156281	Paxton, Samuel B	47.56	----------	----------	47.56
163509	Patton, John V	11.64	----------	----------	11.64
165414	Potter, Gideon T	288.43	----------	----------	288.43
154870	Pearce, Jas. D	364.61	----------	----------	364.61
166056	Prince, Zelotes	7.73	----------	----------	7.73
165185	Peet, John H	145.60	100.00	----------	245.60
9722	Paget, James	----------	----------	50.00	50.00
166145	Plummer, Isaac A	248.83	----------	----------	248.83
173708	Peck, George S	456.14	----------	----------	456.14
164450	Pair, Joseph D	14.73	----------	----------	14.73
165052	Parker, Merideth W	21.20	200.00	----------	221.20
171218	Piatt, John H	98.64	----------	----------	98.64
167214	Parish, Benjamin R., first lieutenant	69.82	----------	----------	69.82
163898	Polite, James, sergeant	2.72	100.00	----------	102.72
163899	------do	10.00	----------	----------	10.00
166048	Polson, John	10.00	180.00	----------	190.00
166049	------do	10.00	----------	----------	10.00
166711	Paulmann, Wilhelm	115.02	----------	----------	115.02
173477	Pedrick, William E	385.92	----------	----------	385.92
166701	Palmer, Joseph	212.70	----------	----------	212.70
166151	Phillips, Jesse J	216.16	----------	----------	216.16
166395	Peck, Emanuel	.43	100.00	----------	100.43
165989	Peterson, Peter C	66.37	----------	----------	66.37

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
166006	Palmer, Darius E	$82.22			$82.22
166139	Presson, Reuben B	15.33			15.33
166442	Precht, Friedrich		$25.00		25.00
166062	Putnam, Henry D		100.00		100.00
122061	Palmer, Charles T	58.04			58.04
167317	Paessler, Theophilus	89.62			89.62
165418	Putnam, Augustus D	387.27			387.27
147218	Perry, Jefferson C	405.57	100.00		505.57
167620	Pease, Charles H	93.80			93.80
166000	Phalen, Richard	122.30			122.30
167013	Palm, Israel	15.34			15.34
167014	——do	1.70			1.70
164417	Padgett, Elijah	90.75	120.00		210.75
155840	Powers, Simeon (or Samuel)	70.73			70.73
155839	Phelps, James M	97.07		$60.00	157.07
167869	Parker, John H	28.72			28.72
166063	Parker, Brinton J		100.00		100.00
167784	Palmer, Ezra C	44.78			44.78
168533	Pettee, Edward		100.00		100.00
167216	Palmer, William H	92.40			92.40
155179	Peddecord, Woodford	106.75			106.75
168771	Platt, Sampson	202.62			202.62
164610	Patton, Henry	50.98			50.98
167348	Partridge, Eugene	118.73			118.73
167343	Parrott, William L.	57.30	100.00	100.00	257.30
165011	Parker, John B. W	28.53		50.00	78.53
175457	Poor, Alphonso		100.00		100.00
167219	Perkins, John	215.46			215.46
167009	Pennock, Joseph	52.29			52.29
167609	Pierce, James		78.69		78.69
167190	Prentiss, James H	14.01	25.00		39.01
167197	Putnam, Simon	44.46		50.00	94.46
167628	Pierce, Seymour	77.85			77.85
167618	Parker, Joseph		200.00		200.00
168101	Pattison, George W	216.06			216.06
167625	Plumb, S. Hiram	16.57			16.57
174401	Palmer, Joseph E	501.73			501.73
168337	Pryce, Samuel D	114.67			114.67
167383	Phillips, Oscar	30.00			30.00
167382	Putthoff, Joseph	52.00	100.00		152.00
167579	Preston, Andrew J		91.10		91.10
169861	Pratt, Van R	97.88			97.88
169385	Phillips, Robert T	43.36			43.36
170097	Phelps, Albert	2.71	100.00		102.71
170098	——do	10.00			10.00
167631	Pendergrast, Jeffrey	11.01			11.01
167241	Pulis, Washington B	94.02			94.02
170417	Porter, Joseph N	54.96			54.96
169227	Pike, Joshua A	257.19			257.19
168514	Pfander, Frederick	21.08			21.08
168354	Paisley, Alexander H	227.49			227.49
169226	Pickering, Isaac O	131.23			131.23
169225	Price, John L	122.85			122.85
169872	Palmer, Charles L	341.66			341.66
173697	Pye, Samuel A		122.56		122.56
168365	Perry, Charles W	72.18			72.18
168793	Pritchard, William S	240.19			240.19
170388	Pulver, Hiram	158.25			158.25
155964	Plumer, Henry C	60.86	15.00		75.86
167365	Petrey (or Pettry), Chrisham	4.81	20.00		24.81
175114	Penron, William		200.00		200.00
164652	Philpot, James E	15.95			15.95
170617	Piersol, Samuel	38.56	100.00		138.56
169157	Post, Isaac B	2.50	100.00		102.50
169905	Pringle, Job	217.11			217.11
166178	Pierce, George W	63.00			63.00
170620	Parker, John F	31.70			31.70
169164	Peck, James C	19.08			19.08
171112	Parker, Albert	10.12			10.12
169586	Pennington, John	64.83			64.83
169585	Pearl, Lewis W	88.71			88.71

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	WAR DEPARTMENT—Continued.				
171093	Powers, Richard	$14.08			$14.08
171094	——do	1.56			1.56
170622	Pelton, Jonathan G	47.41			47.41
166182	Phelps, William G		$100.00		100.00
31045	Purcell, Noah		100.00		100.00
170616	Phelps, Franklin I	76.84			76.84
169912	Peterson, Abner M	56.63			56.63
170410	Penfield, James K	63.49			63.49
170631	Perry, William N	53.80			53.80
171182	Parr, Henry C	299.07	135.02		434.07
166996	Pent, Samuel	53.87		$50.00	103.87
177171	Porter, William H. H	134.06	100.00		234.06
171459	Peck, Edward Q	233.43			233.43
176042	Patridge, Edward M	6.10	100.00	100.00	206.10
170667	Patton, Baptist S		50.00		50.00
171155	Payne, Thomas J	25.00	75.00	50.00	150.00
29628	Perry, Charles H	53.60			53.60
166071	Phillips, Alexander W	7.40	200.00		207.40
169927	Pfaff, Adam	133.23	25.00		158.23
172293	Pettigrew, Thomas	78.43	100.00		178.43
171150	Palmer, John	333.74			333.74
172356	Perkins, Jackson	53.08	150.00		203.08
172357	——do	10.00			10.00
171074	Perry, Noah		200.00		200.00
172298	Porter, Bartine S	118.54			118.54
171577	Perry, Merrill	11.70		50.00	61.70
170672	Poynter, James T	76.94			76.94
166992	Ploghoff, Frederick	52.00	210.00		262.00
172361	Phœnix (or Fœnix), Edward	11.69	100.00		111.69
171070	Patton, Abraham		100.00		100.00
171984	Puderbaugh, Dayton	30.82	100.00		130.82
171559	Polin, Anthony	138.50	80.00		218.50
172583	Prior, Albert		100.00		100.00
171568	Pierce, Sibley		100.00	100.00	200.00
171205	Patterson, Andrew J	112.13	100.00		212.13
171594	Potter, Justus H	3.54	33.33		36.87
171898	Palmer, Seward S	76.00			76.00
172231	Platt, Josiah	162.20			162.20
171601	Powers, Wm. P	174.24			174.24
173092	Purdy, J. Curtis	29.06			29.06
171912	Prentiss, Benjamin F	58.80			58.80
170074	Purviance, Samuel	241.64			241.64
172043	Pile, Graft M	64.73			64.73
172140	Pemberton, David	17.50			17.50
171943	Peck, Garnett	1.72			1.72
171944	——do	.19			.19
173455	Patten, Thomas J	458.22			458.22
174408	Purdy, Lovell, jr	64.40			64.40
173493	Pond, Homer W	121.92			121.92
172248	Ping, Wilbur N		100.00		100.00
173467	Putnam, Samuel H	24.05			24.05
173696	Platt, George F	153.65			153.65
172266	Powell, Thomas J	110.73			110.73
164675	Park, Harlow	439.69			439.69
171922	Phillips, George W		100.00		100.00
173372	Pitcher, Alexander		76.50	100.00	176.50
173373	——do		10.00		10.00
172855	Packard, Henry C	31.48			31.48
171188	Patterson, David H	84.01			84.01
173732	Phillips, Charles J	36.09		50.00	86.09
172199	Potter, William M	198.29			198.29
173422	Pattison, Thomas	130.38			130.38
172329	Page, James H	91.63			91.63
173136	Phipps, Jacob P	213.56			213.56
172219	Peck, William S	129.73			129.73
172276	Parker, Horace B	142.83			142.83
173503	Pixley, Dolphus E	128.67		50.00	178.67
173505	Phillips, William	18.10			18.10
167633	Price, John N	114.72			114.72
173113	Payne, William	.94	100.00		100.94
172213	Page, John E	31.58	100.00		131.58

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
173173	Parker, Eliha C	$36.02	$100.00	$100.00	$236.02
173750	Price, Joseph	152.12			152.12
174012	Patton, Samuel F	356.32			356.32
172954	Price, Edward		20.00		20.00
172955	——do		5.00		5.00
174137	Porter, James M	126.92			126.92
170081	Pierce, Luman G	140.42			140.42
172282	Powell, Orville	799.96			799.96
8142	Phillips, Elvington		82.10		82.10
173743	Powell, Joseph F	3.16			3.16
173628	Perrin, Jackson	9.06			9.06
173629	——do	1.01			1.01
173622	Perrin, Richard	74.50	100.00		174.50
173623	——do	10.00			10.00
165419	Payton, Daniel	12.57	33.33		45.90
174331	Patten, Harrison H	10.04			10.04
168256	Pearson, Edward	3.10			3.10
165584	Price, Samuel	4.00			4.00
171541	Pullen, William	11.70			11.70
164846	Phipps, James T	3.24			3.24
165486	Pine, James A	37.20	100.00		137.20
171465	Parks, James C	564.65			564.65
172912	Porter, Edwin H	84.94			84.94
173760	Price, Gilbert L	19.83			19.83
174377	Purdy, William B	250.99			250.99
173726	Powers, Thomas B	18.43			18.43
174852	Padon, William	228.91			228.91
174625	Prevard, Lewis	45.09	100.00		145.09
174543	Payne, John H	118.51			118.51
173848	Pinston (or Pingston), John	25.16	100.00	100.00	225.16
173849	——do	10.00			10.00
174947	Pinckney, James R	72.92			72.92
175056	Pomerene, Joel	172.53			172.53
174919	Patterson, Nathan	16.86	300.00		316.86
174920	——do	10.00			10.00
153460	Pampel, Edward W	7.36			7.36
154817	Perrigo, Alonzo L	24.15			24.15
174934	Power, Harrison H	30.03			30.03
174826	Pettijohn, Edwin L	69.70			69.70
172240	Patterson, Joseph	5.49			5.49
166215	Parsons, John J	30.55	100.00		130.55
174979	Powell, Benjamin F	52.33			52.33
170086	Pierce, Tavener B	328.57			328.57
170888	Phipps, Ellis P	32.38			32.38
175101	Pile, George	4.30			4.30
174659	Parkhurst, Irving W	68.17			68.17
171599	Peanor, James H	14.66			14.66
173517	Phillips, Beecher W	31.33	100.00		131.33
166645	Payne, Charles	8.91			8 91
176497	——do	.99			.99
165387	Payne, Obie	4.19			4.19
176496	——do	.46			.46
175054	Patterson, William	118.66			118.66
164145	Plew, Isaac D	11.22			11.22
173117	Price, George		100.00		100.00
174945	Putman (or Putnam), John H		100.00		100.00
174948	Palmer, George H	44.82	10.00		54.82
169089	Painter, William D	15.42			15.42
172857	Prescott, Asa D	20.63			20.63
166654	Palmer, Samuel R., jr	75.00			75.00
168951	Parsons, John	4.94			4.94
162150	Prylow, Brass		90.00		90.00
171223	——do		10.00		10.00
169320	Priester, Julius	8.43			8.43
174164	Pike, James R	90.03			90.03
168687	Probasco, Joseph	3.10			3.10
166743	Perkins, Amos	4.08			4.08
168673	Potston, Philip	3.09			3.09
167065	Parks, Marion	4.75			4.75
165398	Pritchard, Robert	6.60			6.60
171245	——do	.73			.73

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	WAR DEPARTMENT—Continued.				
165572	Putman (or Putnam), Henry	$3.24			$3.24
174811	Peairs, William F	104.64			104.64
148235	Quackenbush, John W	146.04			146.04
147760	Quail, Thomas H	115.07			115.07
152401	Query, John M	45.37			45.37
149805	Quinn, James	32.54			32.54
149621	Quinn, John A	27.54			27.54
151615	Quinn, Charles E		$100.00		100.00
152488	Quinton, John M	7.24	160.00		167.24
151988	Quier, Amos J		145.00		145.00
156014	Quarten (or Quarterer), Christ		75.00	$50.00	125.00
155990	Quinn, John	24.62	100.00		124.62
153907	Quigley, Leonard E	35.25			35.25
163864	Queen, Reuben	59.40	100.00		159.10
164792	Quick, George W	1.65	75.00		76.65
164433	Quinton, John		95.08	50.00	145.08
166438	Quinn, William	37.93			37.93
170421	Quaintance, William H		100.00		100.00
173630	Queen, John		90.00		90.00
173631	——do		10.00		10.00
172782	Quick, Philip E	17.93	37.50		55.43
173794	Queen, Benjamin F	8.40		100.00	108.40
169081	Quillen, James M	6.20			6.20
145782	Ruge, William G	18.11			18.11
146010	Ryther, W. Fred	97.12			97.12
146884	Randall, Perry		100.00	50.00	150.00
147298	Robinson, Calvin	12.64	150.00		162.64
147299	——do	10.00			10.00
155974	Rice, R. H. (*See* Robert H. Abbott.)				
147288	Robinson, Joseph R	31.60	100.00		131.60
147289	——do	10.00			10.00
145579	Ryan, William A. C	363.73			363.73
18718	Robertson, William	13.73			13.73
146490	Richards, Waldo S	223.90			223.90
155666	Robertson, Henry T. (or Harry)	32.00			32.00
141986	Reece, Sherrod W	316.39			316.39
146487	Richardson, Joseph	12.28			12.28
143201	Robinson, James P	11.10			11.10
149354	Robinson, David	206.27			206.27
150155	Reed (or Reade), John	22.60			22.60
159591	Roark, John		200.00		200.00
147636	Rich, Samuel S	181.13			181.13
147016	Randall, Henry R	37.46			37.46
148232	Ross, Daniel	141.19		50.00	191.19
147715	Roberts, Richard	31.85	75.00		106.85
146888	Rea, Robert W		100.00		100.00
146898	Reel, Samuel A		100.00		100.00
148237	Randall, William H	19.38			19.38
148236	Rodgers, William F	100.20		50.00	150.20
147706	Rose, Charles H	14.00	100.00		114.00
147707	——do	10.00			10.00
147721	Rowe, William E	1.10	270.00		271.10
143946	Ruge, Julius A	123.37			123.37
146743	Raymond, Henry S	19.02			19.02
147640	Rutledge, Mathew T	102.26	100.00		202.26
147647	Rosson, Charles H	6.43			6.43
147698	Ricketts, James B	12.65			12.65
147699	——do	1.40			1.40
147755	Rose, Thomas	21.90			21.90
148233	Rogers, Charles		60.00		60.00
147335	Riker, George L	109.42			109.42
143947	Rodenberg, Frederick		200.00		200.00
147999	Richart, Charles	48.17			48.17
147633	Reynolds, Jackson W	48.54			48.54
148333	Rodrick, David		200.00		200.00
152092	Raum, Green B	67.21			67.21
134300	Rice, Samuel J		110.00		110.00
149037	Raigle, John A		160.00		160.00
152317	Reynolds, David J		25.00		25.00
148306	Richards, Samuel M	12.38			12.38
149006	Richard, Henry		95.60	100.00	195.60

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
148341	Reams, Bartlett	$7.15	$33.33		$40.48
147790	Ray, Arden W	230.78			230.78
141905	Rushing, John H		90.00		90.00
147013	Rice, Jerome B	242.56			242.56
148540	Rourke, Bernard (alias Benjamin Ruark)	98.28	100.00		198.28
149033	Rockingham, Richard	200.16			200.16
149081	Rand, George H	51.83			51.83
148440	Rider, Robert G	55.97			55.97
148441	Roeschlaub, Robert S	44.49			44.49
149089	Riley, James	4.65	100.00		104.65
148867	Rice, Henry C	23.75			23.75
148900	Rogers, Robert	13.87			13.87
149098	Rand, Henry A	114.85			114.85
148449	Robinson, George F	42.35			42.35
148838	Revere, Nathan L	13.85			13.85
149076	Reinhardt, Charles H	19.06			19.06
149615	Rice, Parley H		200.00		200.00
149633	Reynolds, Thomas F	11.09			11.09
149638	Rees, Evan	59.01			59.01
150361	Reed, James		200.00		200.00
147806	Russell, Benjamin H	45.45			45.45
165060	Reeder (or Reader), Samuel B. W		100.00		100.00
150362	Ross, William H	8.66			8.66
150395	Ross, James P	43.77			43.77
148572	Roberts, Hugh O	43.80			43.80
147828	Redick, Jackson			$100.00	100.00
148011	Reynolds, Joshua T		100.00		100.00
150515	Rankin, , Joseph	14.60	100.00	100.00	214.60
150516	——do	10.00			10.00
150832	Rhoades, William C	43.42			43.42
149562	Rundell, Charles L	201.08			201.08
146904	Rugg, Charles L	16.64			16.64
149134	Rowe, Edward A	159.44			159.44
149102	Robinson, Artemas	21.76			21.76
150366	Robinson, John		100.00	100.00	200.00
150370	Robbins, George	77.56			77.56
150534	Rives (or Reeves), Alexander	67.40	100.00		167.40
150535	——do	10.00			10.00
164695	Russell, William		100.00		100.00
151118	Ruple, Alexander C	62.00			62.00
150507	Rice, Julius	61.32	160.00		221.32
150909	Raines, William (alias Benj. Rains)		200.00		200.00
150920	Rowell, Moses D		200.00		200.00
148410	Rogers, John P		100.00		100.00
148415	Rule, William	139.84			139.84
150929	Rasberry, Green S	202.07	55.00		257.07
151559	Reid, James M	21.17	100.00		121.17
151594	Rowell, William R	117.35			117.35
32215	Robinson, Jacob H		32.30		32.30
18469	Roper, William	91.80			91.80
151573	Reynolds, Seth	13.67	25.00		38.67
146039	Robinson, Scott H	15.77			15.77
151130	Runyan, Henry	45.88			45.88
151564	Reigart, Emanuel H	139.71			139.71
151954	Reighter, Andrew J		21.68		21.68
150867	Ryan, George	120.18			120.18
151878	Robinson, Jacob H	5.40	100.00		105.40
151004	Raymond, Seth L	19.14			19.14
151167	Rapson, William	13.97		50.00	63.97
151875	Ransford, Charles	57.14			57.14
151214	Riebsame, Christian	434.19			434.19
151178	Root, William W	491.57			491.57
150815	Rogers, Lucian A	94.30			94.30
151126	Rowland, Edward		100.00		100.00
151531	Rheinschmidt, Leopold	2.32	100.00		102.32
150793	Reichenbach, E. Charles	123.31	100.00		223.31
166513	Richardson, Charles H	207.72			207.72
151919	Ross, Thadeus	4.95			4.95
151920	——do	.55			.55
151921	Rousey, Ceasar (or Cæsar Rouzey)		92.00	100.00	192.00
151922	——do	2.00	8.00		10.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
152475	Reid, James W		$100.00		$100.00
149145	Robertson, Milo	$84.63			84.63
150829	Rundlett, James H	24.02			24.02
151169	Ritzius, Henry P	19.06			19.06
153034	Rowley, Lyman W	184.04			184.04
152556	Rankin, William F		100.00		100.00
151124	Reeves, Henry D	563.10			563.10
153033	Revels, Jeremiah	2.16	100.00	$100.00	202.16
153755	Rodgers, John		200.00		200.00
152961	Rice, Charles E	296.20			296.20
153078	Rice, Francis G	158.52			158.52
153766	Ross, Levi		100.00		100.00
152506	Robertson, Richard H	12.03			12.03
154031	Rock, Thomas		100.00		100.00
15257	Roach, William		100.00		100.00
153872	Ray, George W	6.38			6.38
154033	Robertson, John H	71.19			71.19
152573	Rhoades, Oliver D		100.00		100.00
152608	Roberson (or Robinson), Samuel	15.37			15.37
152972	Rhodes, Henry J	88.91			88.91
153085	Ross, David C		200.00		200.00
153835	Robinson, Henry	57.74	300.00		357.74
153836	——do	10.00			10.00
151604	Russell, David		100.00		100.00
152507	Russell, Thomas	86.93			86.93
153029	Robinson, Nelson, jr	48.72			48.72
153038	Rodgers, Isaac J		100.00		100.00
153048	Richardson (alias McFadden), John	39.07		50.00	89.07
154038	Roberts, Thomas F	12.18			12.18
150377	Roberts, Jasper	168.52	175.00		343.52
153728	Randolph, Justin S		100.00		100.00
152590	Rhea, David V	689.64			689.64
152611	Royal, John	1.49			1.49
153877	Richards, John J	52.94			52.94
154234	Robbins, Francis M	16.13	100.00		116.13
154196	Russell, Edward	64.74			64.74
154632	Reed, Homogene		90.00		90.00
154633	——do		10.00		10.00
151901	Robison, Joseph	58.40		100.00	158.40
154214	Russell, Samuel F	10.45			10.45
154605	Remington, Wagar H	149.09		50.00	199.09
153458	Richardson, Spencer E		133.33		133.33
153383	Rogers, William H	39.43			39.43
154486	Roberts, Richard	5.00			5.00
153788	Reynolds, G. Perry	41.82			41.82
152022	Reiley, Thomas G			100.00	100.00
169593	Russell, Albert G	78.68			78.68
154340	Rhoten, John J	33.95	100.00	100.00	233.95
153857	Robinson, Fielding	76.01	100.00		176.01
153858	——do	7.50			7.50
155322	Riggs, Jack	89.86	300.00		389.86
155323	——do	10.00			10.00
153827	Rouie, Peter J	471.96			471.96
153446	Rodman, James A	86.23			86.23
154338	Richardson, John M	20.08		50.00	70.08
154489	Rose, Henry	79.05			79.05
152621	Robey, James H	169.15			169.15
154209	Reynolds, Thomas J. (alias Chas. Edings)	53.54	205.72		259.26
154623	Reynolds, John C	553.30			553.30
155400	Reardon, John	130.65			130.65
155831	Robinson, Felden (or Fielan Roberson)		33.33		33.33
154824	Richards, William B	105.10			105.10
154067	Rahe, John	9.59			9.59
155433	Reno, Julius		200.00		200.00
152627	Robards, Squire S		210.00		210.00
154750	Reed, Benjamin F		100.00		100.00
155018	Rulle, Anton		100.00		100.00
155395	Rich, Erskine	43.27			43.27
155467	Rice, Ralsa C	8.29	235.00		243.29
155677	Roberts, Jackson	182.25			182.25
155705	Ricker, William G. A	28.88			28.88

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
155952	Ray, William H	$321.30			$321.30
147820	Randolph, John B. F	53.70	$16.66		70.36
154503	Richardson, Samuel B	59.28			59.28
155704	Russell, Lyman S	34.60			34.60
155893	Roberts, Winslow	366.90			366.90
155419	Radeker, Elbridge G	133.92			133.92
155656	Ray, Willis	27.62			27.62
155895	Rideout, James	36.00			36.00
155971	Roby, William	2.34			2.34
156791	Rugg, Joseph K	100.45			100.45
152060	Richards, Lewis G	958.18			958.18
154844	Ross, George	484.20			484.20
155185	Rutherford, James A	72.70			72.70
155251	Rough, Andrew	21.14			21.14
155715	Rook, Robison S	700.40			700.40
155855	Ricketts, John W	7.00	200.00		207.00
155880	Rymer, Morgan	200.41			200.41
155891	Russell, Frederick R	62.33			62.33
155959	Ragon, Henry H	97.54			97.54
156271	Richmond, Thomas		60.00		60.00
156796	Roach, Ward L	71.50			71.50
163474	Ragon, Eli B	60.25			60.25
163718	Reynolds, Erastus		31.94		31.94
163871	Ray, Bob	25.33			25.33
133872	——do	5.00			5.00
156617	Roe, Elijah	25.23			25.23
156678	Romanoff, Aime		100.00		100.00
155866	Roach, Harrison	33.94			33.94
155566	Romero, Felipe	10.51	18.75		29.26
155248	Rogers, Enos	116.20			116.20
156808	Ragan, William W	4.80	50.00		54.80
163767	Robinson, William F	44.40			44.40
163841	Robinson, George W	13.01	33.33		46.34
172025	Rosenstein, David G		100.00		100.00
155748	Richards, Emanuel A	91.41			91.41
155268	Rogers, James T	15.84			15.84
164583	Runkle, Chesterfield		100.00		100.00
156815	Rush, John I	89.83			89.83
164780	Roseborough, John T		75.00		75.00
156809	Reaugh, William	28.33			28.23
156623	Reed, Chas. E	71.44			71.44
164264	Roby, Reason		210.00		210.00
155708	Roberts, Benjamin F	571.94	285.00		856.94
156624	Rumsey, Horace N	36.01			36.01
155176	Royse, Isaac H. C	24.77			24.77
32701	Reynolds, William	15.53	100.00	$100.00	215.53
164571	Roberts, David	2.74	33.34		36.08
154495	Rinne, William	39.93			39.93
165110	Robuck, William		80.00		80.00
156930	Rogers, William A	49.23			49.23
153887	Roberts, William R	77.63			77.63
165147	Roe, George		90.00	50.00	140.00
165148	——do		10.00		10.00
156710	Rethmeier, Henry	20.36			20.36
164282	Rainey, John T	128.07			128.07
164595	Reed, Elijah E		61.72		61.72
164687	Robinson, John S	180.34			180.34
164747	Richardson, Dock W			50.00	50.00
165064	Rogers, William E		200.00		200.00
165097	Reen, Frederick A	45.33	25.00		70.33
170082	Reynolds, Nathaniel W	604.27			604.27
163475	Roberts, James		100.00		100.00
165974	Russeau, George	67.48	55.00		122.48
164414	Reel, Charles	9.93	75.00	50.00	134.93
165972	Ranney, Albert A		100.00	100.00	200.00
165855	Root, Alva D		100.00		100.00
159878	Russell, Isaac W	106.75			106.75
154481	Roberts, James W	65.32	100.00	50.00	215.32
164630	Robertson, Thomas N	13.68			13.68
165897	Ryan, John	22.07			22.07
164722	Rea, Daniel M	33.30			33.30

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
155870	Routh, Francis M	$4.92	$100.00		$104.92
166415	Richardson, Lester J	44.08			44.08
164597	Ross, John P	266.92			266 92
165899	Reynolds, George W	167.65			167.65
166419	Robinson, Charles M	129.16			129.16
154867	Rice, Edward	4.22	100.00		104.22
165430	Romacker, Bernhard	42.34			42.34
165828	Reilly, Squire	128.26			128.26
165431	Rausser, John F	42.34			42.34
164189	Rifenbergh, Andrew	513.64			513.64
165840	Ross, Joseph L	5.74	33.34		39.08
166216	Rowsey, Charles A	89.56			89.56
165210	Ross, Freeman	65.73			65.73
164723	Ritter, Martin V	18.07	100.00		118.07
165832	Regan, Nicholas C	40.80	60.00		100.80
166692	Ross, Oliver N. (alias Nitte)	89.20	15.00		104.20
165906	Russell, Michael	80.09			80.09
154615	Randall, Nathan J	72.76			72.76
154722	Raymer, Charles H	558.93			558.93
166237	Rudolph, Gossler	169.89			169.89
165469	Ross, James R	16.47			16.47
164435	Ridley, Garland	2.81	100.00	$50.00	152.81
141580	Riddle, Sylvester		145.00		145.00
166091	——do		10.00		10.00
164448	Rose, Henry W	80.80			80.80
155762	Race, Lester	85.76			85.76
165834	Roark, Jonathan W	31.30			31.30
166015	Roseberry, Horace		57.88		57.88
166016	——do		7.50		7.50
166038	Riley, Benjamin		90.00	100.00	190.00
166039	——do		10.00		10.00
166486	Rozier, Emory		290.00		290.00
166487	——do		10.00		10.00
167251	Robinson, Peter	11.40			11.40
167252	——do	1.26			1.26
167851	Robinson, John	37.60	15.00		52.60
166061	Robinson, Davis B		100.00		100.00
166980	Reardon, Francis A		86.62		86.62
165929	Read, Mortimer W	51.09			51.09
166725	Rogers, Rufus D		252.46		252.46
155154	Riordan, Jeremiah F	61.70		50.00	111.70
165919	Robens, John P	25.05			25.05
166377	Rodgers, William A	119.45			119.45
163691	Robinson, George B			50.00	50.00
167619	Risley, Albert C	65.26			65.26
166228	Riffle, Chauncey	522.53			522.53
148552	Robinson, Elisha J	176.37			176.37
166433	Rogers, Harvey	147.29			147.29
167179	Reed, James A		100.00		100.00
167575	Robinson, James P	20.82			20.82
167614	Rogers, George W	557.78			557.78
156941	Rodgers, Theophilus P	53.55			53.55
168138	Reeve, James	42.03	100.00		142.03
167338	Rednour, George (or Rednower)	163.49			163.49
167322	Raabe, Henry		100.00		100.00
167857	Rae, Robert	149.22			149.22
167035	Reaves, Lewis	10.73			10.73
167036	——do	1.19			1.19
168520	Richards, Samuel L	263.38			263.38
167028	Redmond (alias Ashley), Henry		90.00		90.00
167029	——do		10.00		10.00
167339	Rosenbalm, Jacob	23.66	75.00	50.00	148.66
167873	Roberts, Arthur M		200.00		200.00
166973	Richards, John N	168.48			168.48
156944	Reed, Andrew J	113.58			113.58
156812	Rees, William	22.95	100.00		122.95
167880	Riggs, Carter M	463.29			463.29
174391	Rea, James L	215.94			215.94
174364	Roberts, Joseph R	62.38			62.38
163806	Rogers, James P	9.79	25.00		34.79
168505	Reynolds, William	134.50			134.50

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
166729	Ruehle, John V., jr	$159.52			$159.52
167230	Raymond, Edward T	13.57			13.57
167194	Reed, John H		$125.46		125.46
161824	Riley, William L	43.28			43.28
167794	Rivinius, Frederick	32.14			32.14
168774	Redfield, John H	22.29			22.29
167378	Rule, James	194.25		$50.00	244.25
156691	Runnels, Henry	82.92	50.00		132.92
168165	Rokes, James	752.24			752.24
169335	Robertson (or Roberson), Albert		90.00		90.00
169336	——do		10.00		10.00
156697	Rigg, Joseph E		100.00		100.00
156695	Rainey, John A		100.00		100.00
165450	Richey, James R		55.00		55.00
168132	Riggs. Hurlburt	30.68	15.00		45.68
169359	Rayfield, Isaiah		90.00		90.00
169360	——do		10.00		10.00
169386	Russell, Orlando A	91.26			91.26
167807	Rich, Edward A	85.38			85.38
168348	Ray, Henry E	27.66			27.66
168358	Rosenbaum, John	36.12	100.00		136.12
169371	Reis, Eustachius	244.15			244.15
170134	Rainey, Alec	8.72			8.72
170135	——do	.97			.97
168105	Read, Merritt	276.34			276.34
169574	Rice, Langdon B	59.10			59.10
168368	Raymond, Alfred H	78.03			78.03
170385	Rupp, Alois		25.00		25.00
169602	Roberson, William W	15.30			15.30
169148	Rissler, Coulson D	144.55			144.55
170219	Russell, William W	36.68			36.68
167906	Riley, James S	382.76			382.76
168810	Rynearson, Calvin		100.00	100.00	200.00
169910	Rogers, Eli S. C	25.99			25.99
172207	Roberts, John H	363.38			363.38
170852	Rosenbaum, Herman	53.86			53.86
169900	Roberts, Dermont C	84.51			84.51
155707	Reed, Lewis	39.99			39.99
167003	Ross (or Rose), George			68.54	68.54
168115	Riche, George T		200.00		200.00
172900	Robinson, William F	23.94	100.00		123.94
167250	Roth, Solomon Z	120.88			120.88
167806	Ross, James	189.97			189.97
166144	Robertson, Andrew B	65.57			65.57
169634	Richardson, George W			50.00	50.00
169609	Reynolds, Lewis A	5.70			5.70
157789	Roth, George	38.47			38.47
170401	Rumsey, Dubois B	87.04			87.04
169234	Rose, Elisha D	51.31			51.31
170397	Reed, Richard	12.39			12.39
170447	Read, James S	121.58			121.58
168802	Richards, Geo. W	398.48	33.33		431.81
170589	Robinson, David	40.29	50.00		90.29
170590	——do	7.50			7.50
168800	Roberts, Wm. H	33.37	100.00		133.37
170439	Robinson, James C	9.14			9.14
171179	Riggs, John H	46.30			46.30
170244	Rece, Edward		75.00		75.00
171118	Rose, William	2.96	100.00		102.96
171119	——do	10.00			10.00
171114	Read, Isaac	11.06			11.06
171115	——do	1.23			1.23
170872	Robbins, Richard S	22.21			22.21
176101	Ronan, John	49.62	100.00		149.62
172132	Ridenour, Benjamin F	14.01			14.01
167341	Raze, Ansel S	244.52			244.52
170625	Reif, Leonhard	33.33			33.33
171454	Reynolds, Milton	102.49			102.49
171551	Rose, Alexander	10.67			10.67
177147	Rose, Allen T	60.24			60.24
170677	Roberts, Peter	391.25			391.25

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
172229	Ramsdell, Daniel	$15.85			$15.85
171157	Rogers, William B	92.55			92.55
172892	Russell, Stephen		$100.00		100.00
172181	Robbins, Peter W	184.53			184.53
165198	Reich, John C	6.18	200.00		206.18
171947	Rendick, Ephraim	193.48	100.00	$100.00	393.48
171210	Richter, George	21.24			21.24
172817	Roam, James		16.69		16.69
172818	——do		5.00		5.00
172813	Robinson, Daniel		90.00		90.00
172814	——do		10.00		10.00
171464	Reeves, John N	115.50			115.50
172334	Ross, Thomas	12.52			12.52
172335	——do	1.39			1.39
171199	Richardson, Harper S	7.51			7.51
170854	Renton, David	640.22			640.22
172190	Reinoehl, Adam C	204.11			204.11
176732	Russell, Charles P		100.00		100.00
171076	Ryan, Samuel S	71.19			71.19
172161	Rosser, Edwin A	60.04			60.04
173102	Rockwell, Byron B	169.30			169.30
176370	Regan, Patrick	54.78	75.00	50.00	179.78
172046	Roorback, Arthur O	61.80	100.00	50.00	211.80
172605	Reeves, Charles S	5.38			5.38
173452	Ridgway, William	55.22	120.00		175.22
173398	Reed, John	16.07			16.07
173399	——do	1.79			1.79
171069	Rhea, David	136.67			136.67
169854	Ryan, John		42.63		42.63
171928	Reimann, Theodor		325.00		325.00
172263	Ross, Diego C	310.62			310.62
172215	Reeves, Calvin	179.58	33.33		212.91
172022	Robinson, Benjamin C	139.19			139.19
173103	Ruggles, Charles H	65.57			65.57
172599	Ricker, Elbridge G	109.11			109.11
171993	Ross, John D	40.68			40.68
173620	Robinson, William		94.65		94.65
173621	——do	4.65	5.35		10.00
173141	Ratliff, Alonzo	17.76	100.00		117.76
172756	Ruge, Charles E	118.58			118.58
172074	Rodgers, James W	8.61		50.00	58.61
126047	Rankin, Orlando		200.00		200.00
173746	Robson, Robert	8.73	100.00		108.73
172009	Rush, William F	56.46			56.46
173823	Rozier, Valentine		190.00		190.00
173824	——do		10.00		10.00
173125	Roys, Benjamin W	687.23	210.00		897.23
173429	Richardson, John T	124.48			124.48
173178	Robbins, John E		100.00		100.00
173426	Ream, Charles	140.35			140.35
173506	Reighley, George	38.71	100.00		138.71
174238	Richardson, James	8.94			8.94
174230	Roach, John	8.05			8.05
174231	——do	.89			.89
165399	Runnels, Edmond	7.33			7.33
173716	Reed, Thomas D	177.62			177.62
165576	Reeve, Theodore H	2.81			2.81
164092	Rull, Samuel	15.70			15.70
166300	Randolph, John P	6.83			6.83
172914	Reeve, Louis	33.36			33.36
173784	Rodgers, Robert E	64.96			64.96
173511	Robison, Andrew M	5.92			5.92
172786	Rice, Wilber F	90.17			90.17
173489	Reppert, Henry C	84.08			84.08
174094	Requa, William	166.41			166.41
170088	Rucker, Alexander	134.98			134.98
165608	Russell, Charles G	70.76			70.76
173840	Reavely, John	.20	100.00		100.20
173841	——do	10.00			10.00
174621	Ray, Elzy		90.00		90.00
174622	——do		10.00		10.00

Claims allowed by the Second Auditor and Second Comptroller, etc—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued				
175093	Reed, Peter	$23.40		$50.00	$73.40
174915	Russion, Timothy		$284.23		284.23
174916	——do		10.00		10.00
174549	Robinson, Moses M	169.15			169.15
174908	Richardson, Thomas	8.05			8.05
174909	——do	.89			.89
174146	Robarge, George	59.44	40.00		99.44
174954	Rich, James W		100.00		100.00
175072	Reed, Thomas	1.95	190.00		191.95
175026	Rhodes, Rufus A			50.00	50.00
173198	Ricker, Oliver P	284.32		50.00	334.32
173197	Ross, Sylvanus	95.33	100.00		195.33
174907	Richardson, Peter. (*See* Peter Adams.)				
174914	Richardson, Frank. (*See* Frank Billy.)				
152013	Reeves, George W	162.18			162.18
170649	Ross, Andrew J	27.68	37.50		65.18
173827	Reed, William	5.66			5.66
173828	——do	.63			.63
163972	Ridgley, Eli	3.29			3.29
175024	Rankin, John W	174.52			174.52
172208	Rodgers, Andrew F	450.39			450.39
174078	Redman, John M		57.16		57.16
164518	Rush, John B	3.87			3.87
172101	Rice, Daniel	40.60			40.60
174829	Robertson, William A	155.34			155.34
166077	Richardson, Martin W	213.84			213.84
174953	Redner, John		100.00		100.00
172076	Rumph, Charles	64.04			64.04
169780	Rumel, George	3.79			3.79
121861	Rice, Alonzo		45.00		45.00
173839	——do		5.00		5.00
167679	Royster, Peter	4.06			4.06
173730	Rauch, William		110.83		110.83
169568	Reinart, Edwin	2.82			2.82
168665	Reading, James H	4.65			4.65
166841	Ray, Jonn F	13.85			13.85
165352	Rorick, David	21.95			21.95
165742	Reynolds, William	2.79			2.79
171241	——do	.31			.31
167037	Richardson, James. (*See* Jas. Mitchell.)				
169311	Rigby, Alfred A	5.90			5.90
169456	Rochester, Richard. (*See* Richard R. Goward.)				
171460	Reeves, James E	98.10			98.10
174404	Ruche, Rudolph	3.90			3.90
174848	Reynolds Silas E	14.29			14.29
155428	Shields, Michael		135.00		135.00
146089	Sims, Lewis	71.71			71.71
146092	Shewmaker, William R		25.00		25.00
147012	Schwartz, Henry A. C	25.97			25.97
145263	Sears, Charles F	78.27			78.27
146016	Sims, Palin H	39.70			39.70
146137	Stevenson, Thomas G	22.73			22.73
146495	Spofford, Winslow P	33.75			33.75
147204	Simpson, Edwin L	171.17			171.17
145064	Stansifer, James T	120.85			120.85
146997	Selvage, Henry C	80.31			80.31
146998	Schwickardi, Rudolph B	7.59			7.59
147302	Smith, Henry	42.12		100.00	142.12
147303	——do	10.00			10.00
140378	Stoms, Horace G	83.74			83.74
146730	Skilling, Hugh	44.62			44.62
147200	Swift, Edwin	142.30			142.30
155572	Shannon, Richard E	287.40	33.33		320.73
155663	Sullivan, Jeremiah (alias John Burns)		120.00		120.00
144027	Sunday, Jeremiah	22.68			22.68
147209	Shaw, George R	20.84			20.84
144518	Shoaf, Jacob		100.00		100.00
146452	Sheppard, Garlin C	79.14			79.14
145777	Self, John H		100.00	100.00	200.00
146873	Shaunacy (or Shenesey), Patrick	27.42			27.42

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
156875	Sullivan, John	$101.15			$101.15
156307	Sharpe, Jacob	139.66			139.66
147312	Slusser, John B	55.46			55.46
144745	Schioll, Mathias		$100.00		100.00
155984	Sheil (or Shiel), John	297.76		$50.00	347.76
147731	Steinbaker, Abram (or Abraham)	27.04	33.33		60.37
153284	Sweeney, Joseph	14.61	15.00		29.61
147290	Stocks, Jacob. (*See* Pompey J. Jackson.)				
154858	Snider (or Schneider), Lewis	160.40			160.40
155985	Smith, William A	194.79			194.79
146026	Smith, Joseph N		100.00		100.00
147673	Smith, Joshua	11.46			11.46
147674	do	1.27			1.27
147642	Speed, James M		71.15	50.00	121.15
147643	Seigel, Benjamin	43.16	100.00		143.16
147696	Smith, Frank	17.67	100.00		117.67
147697	do	10.00			10.00
37943	Stockton, William S	447.85			447.85
147217	Smith, William A	387.94			387.94
147333	Sweet, Henry C	553.10			553.10
146096	Scott, Anthony L. D	130.74	40.00		170.74
146266	Sturgeon, William R	85.22			85.22
147211	Secord, James K	25.87			25.87
146028	Sheldon, Thomas F	23.60			23.60
147638	Scoville, Hector H	224.15			224.15
148273	Safford, William H. H	18.70			18.70
147694	Scott, Edmond (or Edmund)		94.40		94.40
147695	do	4.40	5.60		10.00
147718	Shepard, Myron		100.00		100.00
148003	Stewart, Levi	113.19			113.19
148283	Sullivan, Timothy M		67.18		67.18
148351	Smith, Truman J	112.64			112.64
147761	Suggs, John L		260.00		260.00
148242	Swartz, John W	232.30		50 00	282.30
146110	Sharp, Julius C	193.33			193.33
148277	Snow, Albert C	12.39			12.39
148518	Sitton, William B	89.23			89.23
148314	Smith, Lucien A	469.32			469.32
146090	Skerington, John	10.06	100.00		110.06
152803	Shepard, William		33.30		33.30
148386	Seibert, Martin		100.00		100.00
143948	Strauch, John B	117.80	85.00		202.80
147765	Shoup, Monroe	23.32			23.32
154739	Sawyer, John W		100.00	100.00	200.00
147336	Stimmel, Michael M	226.86			226.86
147720	Seaman, John W	69.66	75.00	50.00	194.66
148313	Skallon, Thomas J	392.67			392.67
147691	Stewart, Thomas	153.29	100.00	50.00	303.29
147692	do	10.00			10.00
147341	Suhrer, Fernando C	62.81			62.81
146466	Schulte, John H	92.47			92.47
146901	Simonson, James C	135.16	100.00		235.16
147773	Scott, Willard, jr	41.44			41.44
148241	Standard, William M	139.50			139.50
148250	Shaw, Joshua	6.50	100.00	50.00	156.50
148509	Scruggs, Robert	20.56	25.00		45.56
148991	Smith, Gilbert		90.00		90.00
148992	do		10.00		10.00
148995	Strawbridge, Prophet		62.87	50.00	112.87
148996	do		10.00		10.00
157938	Scott, Robert H	12.85			12.85
157689	Stevenson, Daniel		190.00		190.00
147690	do		10.00		10.00
148265	Sconce, George W			50.00	50.00
148362	Sill, Allen N	30.75			30.75
148480	Shear, Aaron		160.52		160.52
148481	do		10.00		10.00
148521	Stoddard, Zebulon B	591.42			591.42
148522	Stauffer, Jacob E	177.02			177.02
148472	Sherman, Ira	11.46			11.46
148473	do	1.27			1.27

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
148387	Sherer, Anton		$100.00		$100.00
148389	Seaton, Jesse D		100.00		100.00
148883	Stanch (or Stansch), August		100.00		100.00
148884	Schoettlein, Frederick		100.00		100.00
146508	Sturtevant, George E	$53.88			53.88
148515	Saylor, John W	354.69			354.69
148520	Spurgin, George W	100.00			100.00
143949	Simmons, James W		33.34		33.34
147768	Smith, John M	54.92			54.92
156837	Smallwood, William H	954.16			954.16
156840	Smith, Andrew J	114.06			114.06
147737	Saddler, Lewis	44.21	100.00		144.21
148270	Squier, John	23.59			23.59
155879	Sholl, Alexander	77.24			77.24
147350	Steere, Henry C	101.05			101.05
148257	Sternberg, Francis C	4.36			4.36
148545	Stone, George W		200.00		200.00
156843	Sutherland, David M	111.73			111.73
147750	Smith, John W		90.00		90.00
147789	Steward, Amasa E	82.27			82.27
148447	Smith, George A	174.21			174.21
148547	Schrader, Ferdinand		200.00		200.00
148888	Sapp, John H		100.00		100.00
148918	Smith, Bernard B	26.87			26.87
149052	Sanders, Lawrence H	66.36			66.36
118760	Smith, James		85.00		85.00
149042	Scott, Samuel L		83.97	$50.00	133.97
149080	Sutherland, John (alias John Hardy)	86.88			86.88
163824	Sparks, George E	28.70	15.00		43.70
147662	Slater, Frederick	80.50			80.50
148876	Stuart, Owen	130.23			130.23
149084	Smith, Henry C		215.00		215.00
147801	Sumner, Anthony W	64.13	75.00		139.13
149600	Smith, Robert M	210.46			210.46
151090	Smith (alias Cloutier or Cloucher), Nelson		100.00	100.00	200.00
148898	Scarlett, Peter	16.43	40.00	50.00	106.43
149066	Self, Green M. C	6.44			6.44
149821	Shaw, Wilson	21.46	300.00		321.46
149822	——do	10.00			10.00
149127	Stockwell, Washington	5.83			5.83
149603	Shepherd, John B		173.70		173.70
150154	St. John, George A	2.74	100.00		102.74
135016	Snyder, John	64.00	100.00		164.00
150198	Smith, Jefferson	22.10	100.00		122.10
129206	Stebbins, Asa D		75.00		75.00
149601	Smith, Samuel A		160.00		160.00
149636	Shattuck, Leander L	126.67			126.67
150511	Sessions, Coraine (or Coran)		290.00		290.00
150512	——do		10.00		10.00
149604	Swiler, Christian			50.00	50.00
148549	Smith, William		100.00	100.00	200.00
149091	Sanders, John H	181.69	100.00		281.69
149617	Sperry, John J	70.58			70.58
148570	Small, Alexander C	49.08			49.08
148576	Sipe, George W	752.23			752.23
148976	Shannon, Washington C	26.34			26.34
149130	Slade, Clark P	417.81			417.81
150174	Scovell, Frederick W			100.00	100.00
148943	Sutherland, William H			100.00	100.00
148946	Snow, Samuel W	20.90			20.90
149631	Smith, William T	292.77			292.77
148529	Scott, David	137.96	60.00		197.96
148974	Smith, William A	545.55			545.55
150496	Sleeper, Asa C	17.02			17.02
150530	Sparrow, Benjamin		290.00		290.00
150531	——do		10.00		10.00
165617	Shorter, John F	104.86			104.86
150836	Stonex, George T	16.09			16.09
148458	Smith, Henry	3.54		50.00	53.54
146909	Schley, Allan F	237.44			237.44
149776	Shaeffer, Jacob		100.00		100.00

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	WAR DEPARTMENT—Continued.				
150490	Sanborn, Samuel J	$96.27			$96.27
149136	Sargeant, Lorenzo D	114.78			114.78
150206	Sisk, John H		$40.00	$50.00	90.00
150386	Shea, John			50.00	50.00
150956	Soleau, Francis X	145.62			145.62
149773	Stafford, Morris T	25.24			25.24
150504	Stanton, Charles T., jr	32.81			32.81
151595	Sassaman, Elias	2.27	33.33		35.60
157040	Shumate, Daniel	22.49			22.49
119443	Smalls, Ned	12.55			12.55
151103	do	1.39			1.39
151086	Spencer, John S	64.08	300.00		364.08
151087	do	10.10			10.00
149770	Soward, Jerome A	128.62			128.62
148468	Sparrow, William E	82.00			82.00
149784	Stewart, John H	315.76			315.76
150208	Schaeffer, William	245.61			245.61
150215	Slade, Daniel G		100.00		100.00
150230	Slayton, James R	67.31			67.31
150841	Shouse, Charles B	134.33			134.33
151194	Shipley, Howard W	91.47			91.47
148413	Stokes, William J	43.96			43.96
150328	Stanwood, Henry B		100.00		100.00
150951	Smith, Harvey M	20.31			20.31
150952	Sinclair, Alexander P	42.62			42.62
53412	Sutton, Enos (or Enoch)		100.00		100.00
148414	Shepard, James W		26.34	50.00	76.34
149148	Smith, Abner W	30.99			30.99
149778	Stannard, Henry		100.00		100.00
150428	Smith, Augustus L	39.45			39.45
150993	Stoddard, Orrin E		181.40		181.40
151093	Smith, William (Fifty-eighth U. S. Colored Troop)		90.00		90.00
151094	do		10.00		10.00
151570	Sloan, Isaac B	124.95			124.95
151871	Spencer, Harlow N	54.05			54.05
151927	Smith, William (Seventy-fourth U. S. Colored Troop)	26.76			26.76
151928	do	5.00			5.00
149817	Shafer, Solomon		90.00		90.00
149818	do		10.00		10.00
150795	Shurlock, William C	290.95			290.95
151923	Smithers, Moses	2.80	195.00		197.80
151923½	do	10.00			10.00
149781	Sutton, Windsor		100.00		100.00
150187	Spoor, George E	27.06			27.06
150936	Short, Christopher		100.00		100.00
29847	Snedeger, William		100.00		100.00
148987	Slinger, John	35.81			35.81
150413	Sidwell, Henry		100.00		100.00
150869	Snyder, Cornelius	137.79			137.79
151005	Smyth, William P	94.55			94.55
151008	Sherk, Matthias	98.04			98.04
151563	Swain, George M	80.16			80.16
154614	Sherwood, Micajah V	155.70			155.70
148398	Smith, Henry		38.95	50.00	88.95
151558	Springle, Charles	14.66			14.66
166387	Simpson, Samuel H	161.06			161.06
143868	Sorrels, George H	26.97	70.00		96.97
151950	Stevenson, Moses	111.74	100.00	100.00	311.74
152151	do	10.00			10.00
153044	Smith, Joseph		25.00		25.00
151128	Sheldon, William A	39.67			39.67
151209	Shellabarger, Joseph L	7.76			7.76
151215	Schwab, Frederick	137.05			137.05
151961	Stonesifer, Israel S	65.09			65.09
151211	Simmons, Isom	98.39			98.39
152012	Smith, Joseph D	61.24			61.24
164579	Sholes, Augustus T	503.17			503.17
151530	Simpson, William F	618.18			618.18
152018	Smith, James R		200.00		200.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
152019	Stringer, Eli	$143.29			$143.29
149669	Staples, John H	165.53			165.53
150990	Shanahan, Winfield S	78.63			78.63
152071	Shain, William A		$67.55		67.55
167857	Smith, Cornelious (or Cornelius)		100.00		100.00
151229	Scribner, Alba N	36.74			36.74
152132	Summers, Benjamin J	3.67			3.67
153159	Small, Andrew	3.94	100.00		103.94
153160	do	10.00			10.00
151561	Stevens, James L			$50.00	50.00
152491	Schell, George	31.63	100.00		131.63
152593	Skeen, Crocket			50.00	50.00
164705	Sommers, Anthony M	351.11			351.11
148029	Shaffer, Michael	504.42			504.42
151968	Sefton, Charles J	50.57			50.57
151979	Smouse, Daniel T	37.52	100.00		137.52
152951	Strowger, Almon B	70.44			70.44
116039	Spann, Thomas J	163.93			163.93
151189	Stebbins, Lavoisure	185.23		50.00	235.23
165484	Smith, Jabez	150.34	85.00		235.34
151212	Streeter, William N	327.54			327.54
151607	Sullivan, James (Twenty-fourth Connecticut Volunteers)	94.07	100.00		194.07
152026	Skinner, David T	234.19			234.19
153003	Simonds, George W	200.24			200.24
154596	Segoire, Jesse	100.20			100.20
152139	Shoemaker, Dennis M		100.00		100.00
153129	Smith, John	37.33			37.33
148587	Snow, Hiram	53.70	100.00		153.70
151540	Schmidt, John	34.09			34.09
153431	Sills, Samuel H	133.83	75.00	50.00	258.83
164797	Stamm, George W	61.20			61.20
150985	Soules, Friend D	134.76			134.76
151981	Stephens, Holloway L	19.86			19.86
152180	Sargent, Ruben		94.60		94.60
152181	do	4.60	5.40		10.00
152073	Strode, James P	315.91			315.91
153751	Sullivan, James (Second Vermont Volunteers)		200.00		200.00
151980	Steckel, Edmund F	23.30			23.30
152563	Stuhlman, William		100.00		100.00
152568	Spencer, Peledge H		200.00		200.00
153128	Silsby, Frank	88.75			88.75
152975	Snyder, John	177.92			177.92
153147	Southworth, Orson	59.12			59.12
153356	Shisler, Jacob S	44.23			44.23
154032	Strevy, John	219.68			219.68
152496	Salyers, James F		100.00		100.00
153010	Sands, James H		100.00		100.00
153017	Sergeant, David	103.23			103.23
153046	Snyder (or Snider), Jacob		200.00		200.00
153089	Stone, Daniel E		100.00		100.00
153792	Smith, Arthur A	16.22			16.22
153833	Smith, John		90.00	88.25	178.25
153834	do		10.00		10.00
153839	Stewart, Richard	38.73			38.73
153840	do	5.00			5.00
153841	Singleton, Richard. (*See* Richard Fripp.)				
153851	Scott, Samuel	138.81	100.00	100.00	338.81
153852	do	10.00			10.00
154312	Smith, Nathaniel J		100 00	50.00	150.00
152983	Scott, Dwight C	127.84			127.84
153024	Summers, Rowen	19.58			19.58
153134	Smith, Frank S	125.75			125.75
153874	Simpson, Charles B	10.82			10.82
154554	Soule, Ambrose L	14.10			14.10
154552	Spears, John	6.72	10.00		16.72
129708	Spears, David C	43.48	100.00		143.48
153778	Stickney, Edward J	67.36			67.36
154041	Springer, Franklin	222.41			222.41
157841	Sellers, John	7.90			7.90

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
150973	Scheifley, John	$22.16			$22.16
151986	Sanderson, William E		$100.00		100.00
153870	Shobe, Smith	20.60			20.60
154631	do	5.00			5.00
153876	Snyder, John W	478.43			478.43
154317	Streck, Eugene	282 98			282.98
153092	Stanwood, Sabin C		160.00		160.00
153106	Smith, Henry C		100.00		100.00
154191	Stoll, Charles	287.13			287.13
74717	Shortridge, Andrew	86.15			86.15
152079	Sherman, John	51.20			51.20
152617	Smith, William H	13.44			13.44
152618	Smith, John C	13.44			13.44
153107	Stevens, William H		200.00		200.00
153735	Sowers, Henry		175.00		175.00
153452	Shillideay, John S	23.44			23.44
153785	Smith, Andrew C		100.00		100.00
153789	Smith, Chester	7.99			7.99
153810	Smith, Frank	54.00			54.00
154617	Smith, John F	11.51			11.51
154636	Scott, Anderson	8.00	100.00		108.00
168513	Slingluff, Charles	17.00			17.00
153060	Sanders, Bazil C	94.19			94.19
154606	Servis, Howard	205.14			205.14
154803	Sells, Orange	185.54			185.54
152589	Stiles, William H	25.88			25.88
152984	Swift, Michael H	101.38			101.38
153455	Sherman, James D	40.53			40.53
153817	Swickard, John W	424.32			424.32
152574	Scranton, Clifford R		100.00		100.00
154237	Spradlin, Jesse		100.00	$100.00	200.00
154572	Smith, James L	234.86			234.86
154804	Slavin, Christopher C	8.53			8.53
154842	Schönewolf, Andreas	21.26			21.26
152010	Spence, William H	79.62			79.62
153433	Shoemaker, John W	146.20			146.20
153467	Secrest (or Secrist), John H	22.18	4.00		26.18
154558	Shuman, John	362.40			362.40
154561	Southworth, Andrew J	48.37			48.37
154065	Sell, Nicholas H	74.07			74.07
154206	Sparks, Samuel J		125.00		125.00
154211	Scoles, Erastus		235.00		235.00
154248	Smith, Vietts E	94.52			94.52
154480	See, John J	10.63			10.63
154626	Schermerhorn, Nelson W	73.64			73.64
155166	Shoup, Samuel N	21.89			21.89
155396	Smith, Isaac E	50.11			50.11
155399	Shorey, Eben M	295.50		50.00	345.50
153069	Strout, Hooper D	327.34			327.34
154996	Schaefer, David W	284.16			184.16
153895	Swift, Morton D	95.14			95.14
162497	Shaw, Almond		100.00		100.00
50701	Simmons, James A		33.34		33.34
152982	Smith, William	44.55	125.00		169.55
153468	Shaffer, David		100.00		100.00
154575	Southworth, Benjamin F	130.14			130.14
154821	Smith, William C		285.00		285.00
155168	Shortridge, William C	18.45			18.45
155402	Southworth, William	243.95			243.95
155725	Stinson, Albert		200.00		200.00
154854	Sherlaw, Ira	134.27			134.27
155563	Shamburg, Francis	10.14			10.14
153896	Stricklin, Simpson S	21.20			21.20
154828	Smith, Byron		200.00		200.00
155409	Sweet, Charles E	202.42			202.42
155552	Snyder, Enos	233.17			233.17
155686	Spence, Joseph	60.97			60.97
154257	Stillson, Calvin R	111.17			111.17
154342	Scott, Hugh	36.47			36.47
154345	Steltner, Claborn W	25.00	75.00	50.00	150.00
154500	Sloan, Richard	10.12			10.12

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
154501	Slaybaugh, William H	$14.40			$14.40
154729	Straus, Henry		$100.00		100.00
155012	Stewart, Luther	375.41			375.41
155016	Somers, Thomas H	28.74			28.74
155162	Swan, Samuel M	110.40			110.40
155163	Scudamore, Joseph B	123.44			123.44
155232	Somerville, Thomas M		200.00		200.00
155679	Stephens, William R		33.34		33.34
155874	Smith, Edwin H	135.03			135.03
155316	Smith, Jacob	5.60	100.00		105.60
155317	——do	10.00			10.00
155461	Stofer, Henry	53.23	15.00		68.23
155689	Snail, William N	9.26			9.26
155992	Summersides, Thomas W	29.72			29.72
156113	Swanton, Hammond	12.73			12.73
160927	Strader, Brantley	33.79			33.79
154192	Springsteen, James	6.33	95.00		101.33
155418	Shepard, George H	202.57			202.57
155957	Starr, Samuel	181.08			181.08
156753	Smith, Robert	67.49	100.00		167.49
156754	——do	10.00			10.00
153885	Stafford, Israel B	33.57			33.57
154826	Sickels, Isaac S	97.25	40.00		137.25
155253	Saunders, William	79.51			79.51
153445	Shepperd, Thomas C	185.28	260.00		445.28
154505	Snooks, George E	72.78			72.78
166181	Sanborn, R. Freeman	35.93			35.93
163851	Sullivan, Flavel W	6.91	100.00	$100.00	206.91
170371	Simms, John	1,419.98			1,419.98
170404	Stillwell, George W	40.68			40.68
156901	Stedman, Edwin A	1.43			1.43
163062	Strawn (or Strong), Jesse	9.51			9.51
152330	——do	1.06			1.06
156147	Scroggs, James		292.68		292.68
156148	——do	2.68	7.32		10.00
167344	Sturtevant, Josiah H	92.62			92.62
167790	Stone, John H	64.37			64.37
137265	Smith, Samuel	37.75			37.75
156688	Schaub, John A	138.38			138.38
152056	Simons, Alfred G	38.00			38.00
153059	Snapp, Madison			50.00	50.00
154859	Stidham, William F		100.00		100.00
155576	Sandford, or Sanford, William A			100.00	100.00
155584	Shea, Jackson C	63.14			63.14
155662	Small, Sylvanus C	296.95			296.95
155734	Smith, James W	472.12			472.12
155789	Sloan, Benjamin P	123.37			123.37
155846	Smith, Theodore S	7.38			7.38
155862	Smallwood, James M	27.37	50.00		77.37
164251	Shickley, Benjamin F	50.81			50.81
155457	Southard, John W	5.80			5.80
155881	Seibel, Edward M	845.15			845.15
155906	Seberts, George W	32.90			32.90
155953	Seeley, Isaac B	12.13	75.00		87.13
155960	Smith, Charles M	22.85			22.85
156275	Snyder, Robert		100.00	100.00	200.00
156300	Smith, William		100.00		100.00
156610	Stewart, James	145.93			145.93
156675	Smith, William			100.00	100.00
156849	Sanderson, George O	183.21			183.21
163481	Simmons, Almedus F	12.87			12.87
163758	Spalding, Edwin A	34.50			34.50
163840	Spalding, John A	109.02			109.02
164159	Sly, Norman A	11.62			11.62
156731	Shurtleff, Albert	23.40			23.40
163778	Stewart (or "Stuard"), Thomas	46.19	33.33		79.52
155266	Stafford, William K	185.86			185.86
155265	Smith, Alexander D	43.80			43.80
155777	Storer, Francis R	62.22			62.22
156698	Stults, James A	25.77	100.00		125.77
156807	Scearce, William W	10.83			10.83

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	WAR DEPARTMENT—Continued.				
156852	Smith, Thomas V	$32.63			$32.63
156853	Smith, Aaron M	102.16	$35.00		137.16
163723	Sicking, George L	760.13			760.13
163852	Skaggs, Hutson F	92.00	75.00	$50.00	217.00
164153	Smith, John M	12.84			12.84
164164	Snow, Norman L	31.62			31.62
163803	Snider, S. W	48.52			48.52
164258	Smith, James H	48.00	100.00		148.00
171474	Sanborn, William W	62.76	40.00		102.76
156913	Schultze, John S	257.77			257.77
426957	Slade, Hezekiah			100.00	100.00
163499	Stump, Morgan M	25.06	33.33		58.39
163818	Stroup, George B	110.55			110.55
163781	Sitler, Jesse R	502.60			502.60
164586	Salmons, Noah		70.00		70.00
164662	Staub, Henry		100.00		100.00
164588	Smith, Benjamin R	6.63			6.63
156742	Strong, John H	3 39			3.39
164169	Smith, George C	80.77			80.77
164575	Smith, James W	155.83			155.83
163833	Students, William	168.00	100.00		268.00
153793	Shores, William	67.83			67.83
165091	Shira, Robt. O		20.00		20.00
154350	Strange, Benjamin	57.50			57.50
155267	Stallings, Alexander	195.78			195.78
164277	Story, James T	60.02			60.02
164703	Stringer, Eliza T	41.31			41.31
156854	Sebring, Jeremiah T			50.00	50.00
155249	Seebold, James L	54.63			54.63
163680	Steadman, Henry P	33.27			33.27
164739	Stauffer, Henry	14.43			14.43
164698	Strain, John		100.00		100.00
164669	Smith, John W		100.00		100.00
164180	Stevens, Coryell G	106.34			106.34
164740	Shuster, John	1.07	100.00		101.07
164175	Saxton, William	10.69			10.69
164271	Smithson, William E	105.80			105.80
163878	Smith, Milo	12.73			12.73
153733	Smith, James C. A	129.83	95.00		224.83
164180½	Simmons, Henry	156.18	195.00		351.18
164181½	do	10.00			10.00
172037	Stark, Hiram T	38.23			38.23
164601	Schweitzer, August	11.08			11.08
150179	Stover, Abraham	141.44	80.00		221.44
145689	Smith, Andrew J	21.98			21.98
156686	Schindelmann, George		200.00		200.00
156736	Shepard, James R	14.99			14.99
156822	Storms, Jonathan Y	138.80			138.80
156921	Smith, Thomas J	88.30			88.30
163655	Stockwell, John W	16.63		50.00	66.63
163659	Sparks, Albert C	157.41			157.41
164672	Stretch, Joseph	9.38			9.38
164677	Steel, John W		200.00		200.00
164683	Shields, John R	72.52			72.52
164686	Stookey, Solomon	61.37			61.37
164749	Strauss, Nathan	80.11			80.11
164803	Shaver, Philip E	36.48			36.48
165062	Seaton, William		200.00		200.00
165073	Sharp, George R	155.97			155.97
165096	Shuler, Samuel M	117.12			117.12
165100	Smith, William H. H		100.00		100.00
165111	Smallwood, Isaac A	42.59			42.59
165174	Smith, Stephen S	182.12			182.12
171564	Stewart, Mason H	80.70			80.70
164047	Sage, Harley H	7.09			7.09
162123	Sutherland, William	3.98			3.98
152325	do	.44			.44
165123	Simons, George		210.00		210.00
164706	Simpson, Townsend L	24.00			24.00
164764	Skinner, Holly	214.24			214.24
165082	Stecher (alias Mohr), William	46.76			46.76

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	WAR DEPARTMENT—Continued.				
164620	Smith, Leonidas	$27.50			$27.50
165106	Spear, William R	1.53	$100.00		101.53
164289	Swander, W. H	39.44			39.44
164216	Shaeffer, Samuel		125.00		125.00
165451	Spilker, Frederick		160.00		160.00
156980	Stemmer, Sylvester	2.41			2.41
165176	Sinclair, John H		75.00		75.00
164651	Snell, Ira N	16.19			16.19
170450	Short, Thomas H	2.24			2.24
166983	Staub, Joseph		300.00		300.00
165902	Seely, Robert R	80.34			80.34
165427	Schee, John	32.78			32.78
166057	Strank, George		100.00		100.00
164804	Stoddard, L. Francis	31.38			31.38
166137	Shell, George W	17.79			17.79
165462	Suman, Isaac C. B	26.82			26.82
165085	Simpson, Andrew J	21.23			21.23
164596	Strange, James		48.39	$50.00	98.39
164710	Steward, Thomas L	11.64			11.64
166417	Sears, William	162.99			162.99
165839	Shuck, James W	3.40	33.34		36.74
165438	Schnurr Fritz	35.52			35.52
164633	Shrader, Daniel	38.08			38.08
166375	Summers, John H	169.31	25.00		194.31
165820	Sanders, John C	7.87			7.87
154262	Smith, Henry C	21.08			21.08
166132	Sherburn, William	219.88			219.88
166214	Smith, Andrew	71.71			71.71
165901	Shaver, John H	185.02			185.02
163642	Stickney, Charles H	115.65			115.65
166371	Slifer, Samuel H	29.29	15.00		44.29
165825	Stanley, Abram B	75.58			75.58
165037	Sutton, George W	39.39			39.39
154613	Schutter, Henry	75.45	25.00		100.45
165896	Spink, Elon P	600.67			600.67
166390	Smith, William F	19.43			19.43
165889	Sampson, Reuben E	4.00	135.00		139.00
164436	Stansberry, Prior L	2.81	100.00	50.00	152.81
165975	Spears, Francis M	16.31			16.31
165918	Sherman, Charles P	8.01			8.01
165467	Sheets, Warren	19.72			19.72
166426	Sullivan, Peter	36.45	15.00		51.45
165890	Sewright, Andrew		25.00		25.00
164641	Stilwell, Stephen A	135.99	50.00		185.99
165193	Stedman, Andrew S	58.20			58.20
173671	Schulteis, Herman J	25.54			25.54
171487	Stanley, William S	23.83			23.83
163909	Seymour, Frank		300.00		300.00
163910	——do	10.00			10.00
166696	Scheffler, Carl B	36.06			36.06
165141	Simmons, John	12.55			12.55
165142	——do	1.39			1.39
166454	Sharp, Thomas		103.60		103.60
166455	——do		10.00		10.00
167015	Sewell, Robert	26.76			26.76
167016	——do	5.00			5.00
166651	Spencer, Sylvender B		100.00	100.00	200.00
166108	Smith, Celastin (or Selastin)	24.43			24.43
166109	——do	5.00			5.00
65599	Stalder, Frederick	212.10			212.10
167573	Silvers, John S	27.01	100.00		127.01
166007	Scott, Donald D	11.30			11.30
166976	Siener, George A		200.00		200.00
166724	Scott, Alexander	66.67			66.67
167310	Sprague, James B	83.26			83.26
165043	Swallow, Eugenius M		200.00		200.00
166712	Shephard, Harry H			50.00	50.00
166978	Shepard, James H	163.21			163.21
166473	Small, Levin		98.05	50.00	148.05
166474	——do	8.05	1.95		10.00
166471	Smith, Henderson	9.00			9.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
166472	Smith, Henderson	$1.00			$1.00
165843	Strange, James L	330.89			330.89
165849	Stump, James H	845.14	$85.00		930.14
155996	Sergent, Charles J	690.23	100.00		790.23
166393	Stewart, Ephraim P		100.00		100.00
166135	Squier, George W	207.16			207.16
166150	Spattee, Charles A	333.29			333.29
166699	Stevens, William C	129.07			129.07
166429	Stedman, Benson F	82.96			82.96
166993	Sackett, Reuben T	59.26	100.00		159.26
167771	Schoenwald, Albert	9.02			9.02
167586	Smith, John J	26.00			26.00
163868	Simpson, Ransom M	10.07			10.07
163689	Smith, Frank	89.55			89.55
160466	Slaughter, Robert	5.85			5.85
171214	——do	.65			.65
168091	Saltkill, John W		75.00		75.00
172221	Smith, Solomon	501.30	100.00		601.30
166238	Shankland, William P	23.71			23.71
167178	Smith, Morgan M		100.00		100.00
166402	Service, David		100.00		100.00
165522	Sherwood, Isaac	8.28			8.28
167184	Slotts, John Q	50.99	25.00		75.99
166399	Showaker, Chas. W		100.00		100.00
167840	Simmons, Benjamin	40.35	100.00		140.35
167841	——do	10.00			10.00
167049	Sleat, Alfred		55.04		55.04
167050	——do	2.54	4.96		7.50
167861	Skinner, Jeremiah	104.98	95.00		199.98
167313	Smith, Charles H	219.39			219.39
166975	Stephens, Andrew J	116.32			116.32
166002	Smith, Peter C	112.41			112.41
173266	Stephens, Wilson	64.40	100.00		164.40
168536	Simmons, Edward	59.00			59.00
168537	——do	7.50			7.50
168097	Scott, Lewis	39.92		$50.00	89.92
168494	Saylor, Josiah	4.30			4.30
166686	Schermerhorn, Spencer	21.65			21.65
167785	Shorey, Edwin H	4.78	50.00		54.78
168135	Schmidt, Louis F		35.00		35.00
175066	Sattler, Ladislaw	34.35			34.35
155441	Soyster, William H		285.00		285.00
166652	Stanover, Frederick		100.00		100.00
167349	Smith, Edward D	73.26	100.00		173.26
155709	Sherman, George R	35.39			35.39
167225	Shirley, Tillman	95.97			95.97
167592	Stewart, Nathaniel J	64.40	75.00		139.40
168069	Shaw, Daniel	4.88			4.88
168071	——do	.54			.54
168382	Spears, Anthony		90.00		90.00
168383	——do		10.00		10.00
166161	Stewart, James G	111.50			111.50
168152	Spencer, James		210.00		210.00
167218	Stokely, Samuel B	663.66			663.66
167918	Stacy, Miles A	257.63			257.63
168503	Snyder, Henry		100.00		100.00
168780	Stalcup, Stephen	250.48			250.48
167919	Scheldt, Julius	20.16			20.16
167912	Smithson, Robert E	103.70			103.70
156118	Sylvester, Julius (or Jules)	15.34			15.34
156119	——do	1.70			1.70
167910	Stevens, Nelson	17.94			17.94
167922	Schmidt, Diedrich	67.35			67.35
167786	Schenck, Daniel T	131.36			134.36
175102	Stilwell, Wesley	496.78			496.78
168781	Stamper, Richard M	115.40	50.00		165.40
167867	Sharlow, Que	4.54			4.54
167298	Souter, James	3.85			3.85
163696	Soule, Oscar H		100.00		100.00
163849	Shirley, Joseph		119.33		119.33
166170	Stewart, Henry K	112.53	100.00		212.53

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	WAR DEPARTMENT—Continued.				
167888	Suhler (alias Newstattle), Simon	$163.36			$163.36
167884	Smith, Henry A		$25.00		25.00
169862	Stanton, Clark	676.34			676.34
169333	Stockard, Henry	19.18			19.18
169334	do	5.00			5.00
170104	Stephens, Calvin	28.50	100.00	$50.00	178.50
170105	do	10.00			10.00
168347	Smith, Anderson T	161.65	40.00		201.65
168788	Sibert, Thomas	279.76			279.76
167347	Schall, William H	331.52			331.52
167345	Searle, George L	168.69			168.69
167208	Sparks, David R	109.68			109.68
167890	Silver, Amos		100.00		100.00
165924	Smith, Norman W	117.30			117.30
166158	Somerville, William	101.73	100.00		201.73
163706	Sargeant, George D	15.35	100.00		115.35
167871	Sherman, Franklin O	57.73			57.73
171285	Smith, Samuel		20.00		20.00
171288	do		5.00		5.00
43116	Sneed, Henry	72.05			72.05
43116½	do	5.00			5.00
169867	Shafer, William B	140.54			140.54
169149	Stephens, Harrison	72.48			72.48
168525	Staley, Frederick W		100.00		100.00
169214	Stanley, Samuel R	36.64	50.00		86.64
168521	Sloat (or Schlott), William A		100.00		100.00
168107	Swigert, David		60.00		60.00
166704	Sixbey, Frank	216.25	135.00		351.25
165474	Smith, William G	8.29			8.29
170375	Smith, Michael E	132.82			132.82
170374	Smith, William R	312.53			312.53
175826	Smith, John, Private Company E, Twelfth New York Cavalry		200.00		200.00
170221	Stevenson, William H	49.36			49.36
170389	Sawyer, Thomas J	160.92			160.92
169154	Scott, Robert K	26.16			26.16
163761	Seeley, Charles	87.51			87.51
170414	Smith, Thomas P		100.00	100.00	200.00
167400	Sinclair, Alexander	155.84			155.84
169909	Schmitt, John A	61.55			61.55
170223	Sabins, Wilbur P	7.71			7.71
169906	Stillwell, John	154.55			154.55
171054	Smith, sr., William	86.79	66.66		153.45
164636	Stafford, George W	43.00			43.00
169409	Schwab, Cornelius		100.00	100.00	200.00
169886	Sheldon, Thomas F		38.35		38.35
176041	Springsteen, Jeremiah M	52.40			52.40
26272	Spinning, John	116.69	100.00		216.69
171544	Sullivan, William	30.54			30.54
170655	Skinner, Joseph E	67.22			67.22
170660	Stumph, Elisha H	173.01			173.01
170666	Summers, Oscar	67.81			67.81
170413	Smith, James B	26.06	25.00		51.06
169607	Solean, James J	36.30			36.30
169598	Saxton, Nelson A	84.61			84.61
170429	Shearer, John C	25.60			25.60
170062	Sprague, Charles W	270.37			270.37
170059	Sheldon, Henry A	338.08			338.08
170406	Swart, Henry B. (alias H. B. Black)	32.90			32.90
169239	Stuart, Isaac W	9.19			9.19
168122	Storm, Coleman F	46.13			46.13
171457	Siebert, Charles	128.98	75.00	100.00	303.98
163684	Sylvester, Walter S	62.93			62.93
168809	Stratton, Isaac N	191.75	100.00		291.75
170862	Smith, Joseph R	31.08			31.08
169246	Schmidt, Henry	21.83			21.83
171265	Salmond, John (or Jack Sammond)	4.40			4.40
168392	Starr, William	80.69	100.00	100.00	280.69
168393	do	10.00			10.00
169922	Snow, Augustine A	78.55	100.00		178.55
170446	Snodgrass, James McK	157.20			157.20

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
164456	Stewart, Charles H	$39.20	$2.00		$41.20
169250	Stullenburg, David	.66	75.00		75.66
171153	Shadowen, T. W. T	79.00	240.00		319.00
171514	Scott, Harrison	126.95	100.00		226.95
171515	——do	10.00			10.00
165155	Shepherd, Jack	18.26	200.00		218.26
165156	——do	10.00			10.00
170636	Sims, John B		100.00		100.00
169134	Smith, Francis M	1.75	100.00		101.75
171893	Still, John C		100.00		100.00
170665	Starrett, Samuel W	72.58			72.58
171065	Sargent, John J		199.78		199.78
171289	Samashum, Abram	142.04			142.04
170877	Smith, William H	23.41			23.41
167925	Schell, Adam	23.95	33.34		57.29
172174	Severance, La Grange	67.08			67.08
171974	Stubblefield, Harvey W	56.38		$50.00	106.38
171939	Simmons, Jeffrey		46.30		46.30
171940	——do		7.50		7.50
170440	See, Clement R	156.55			156.55
170886	Stacker, Samuel	15.43	75.00	100.00	228.43
171202	Scofield, Thomas D	163.97	25.00		188.97
171475	Scott, Rufus	81.10			81.10
171471	Stiles, Sampson D	168.47			168.47
170644	Schaffer, Lewis		200.00		200.00
171563	Smith, Samuel N	168.46			168.46
172131	Smith, Michael A	339.42			339.42
171906	Smith, John W	62.95			62.95
172096	Stoll, Simon		100.00		100.00
171956	Sutton, Richard		91.33		91.33
171957	——do	1.33	8.67		10.00
172102	Sapp, Willis M	119.58		50.00	169.58
171965	Smith, Addison	58.10			58.10
171966	——do	7.50			7.50
172346	Sanders, Lewis	9.50			9.50
172347	——do	1.05			1.05
171591	Stuart, Andrew B	95.14			95.14
173160	Shay, Michael	4.60	135.00		139.60
171548	Smith, Stephen H	74.48			74.48
172257	Stoner, John B	36.63			36.63
170673	Schneider, Joseph	44.04			44.04
169926	Spragins, John D	20.49			20.49
170876	Stevenson, Samuel H	131.70			131.70
171990	Southworth, Malek A	114.27			114.27
170647	Smithhart, Lewis W	4.29	200.00		204.29
172187	Snow, Henry F	89.86			89.86
172935	Spears, Jack		90.00		90.00
172936	——do		10.00		10.00
172224	Smelker, John W	126.09			126.09
172233	Spafford, Benjamin F	.55	75.00	100.00	175.55
171569	Steadman, George P	12.35			12.35
172864	Starr, George E		106.46		106.46
172856	Shattuck, Frederick R	90.44			90.44
177021	Stone, David C	137.72			137.72
177354	Steward, Courtland. (*See* John H. Meriday.)				
171595	Surring, William	.54	100.00		100.54
170681	Smith, J. August	126.76			126.76
172183	Stevens, William A	22.18			22.18
172106	Shields, Benjamin T		79.00		79.00
170678	Smith, John T	80.95			80.95
168517	Steiner, Philip	39.95	75.00		114.95
172255	Stewart, William A	46.60			46.60
170075	Showalter, John T	94.15			94.15
170078	Spinney, Joseph O. H	489.84			489.84
161939	Steele, Davis	14.36	100.00		114.36
172836	Sterns, Zachariah	3.00	100.00	100.00	203.00
172837	——do	10.00			10.00
173388	Selden, William	11.39			11.39
173389	——do	1.27			1.27
172256	Snowden, George O	15.19			15.19

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	WAR DEPARTMENT—Continued.				
172588	Soden, William	$7.04	$75.00	$50.00	$132.04
172589	Smith, John C	217.41	60.00		277.41
173386	Starks (alias Drayton) James	11.39			11.39
173387	do	1.27			1.27
171485	Smith, Oran W. (alias Oran Emmett)	13.44			13.44
31569	Smith, Benjamin F	112.36	100.00		212.36
172050	Stevens, James G	43.15			43.15
173135	Sammons, James M	148.13	75.00		223.13
172317	Stevens, Charles D	92.65			92.65
173451	Shultz, Charles H	166.40			166.40
173457	Statts, Alfred	2.80	10.00		12.80
172165	Sommerville, John	17.03			17.03
172910	Seymour, George	245.63			245.63
167637	Schlichting, Bernhart	34.69			34.69
171607	Stocks, Henry	44.84			44.84
172067	Snead, Robert C	402.84			402.84
172066	Stricklett, Pleasant M	105.25			105.25
173106	Steiner, William	178.61			178.61
172198	Shelp, Dr. Addison	181.22			181.22
171586	Scarfe, James R		100,00		100.00
172119	Schwartz, Charles	2.84	100.00		102.84
172114	Sumstake, Amanuel (or Emanuel Zumsteig)	37.63	75.00	50.00	162.63
171920	Strong, Charles R		99.00		99.00
171160	Simms, Winthrop H		51.53	50.00	101.53
168355	Shove, Don A	117.67			117.67
171189	Saviers, Lemuel	72.28			72.28
171914	Strayer, Daniel	1.91	100.00		101.91
167401	St. Clair, Robert C	107.90			107.90
173121	Skillman, Isaac	152.00			152.00
173416	Steele, James	61.12			61.12
172072	Skiller, William A	107.73			107.73
172330	Stowell, Henry H	39.67			39.67
171919	Silman, John	2.24	200.00		202.24
173418	Sanford, Arthur W	147.25			147.25
169175	Slusser, Jefferson F	316.57			316.57
174204	Starkweather, Asa D	173.13			173.13
173460	Scott, James N	77.79			77.79
172212	Stewart, John H	65.50		50.00	115.50
172915	Sabin, Alvin N	43.81			43.81
174986	Scott, George W		90.00	90.00	180.00
173835	Stewart, Jones	88.02	100.00	100.00	288.02
173836	do	10.00			10.00
171605	Soules, John V. (alias John A. Walters)	100.96			100.96
172322	Sheppard, Lewis D	130.34			130.34
172245	Smith, William H	30.81			30.81
171561	Schultz, Harmon C	66.93			66.93
173155	Spencer, Oliver P	65.46			65.46
174011	Smith, Charles	19.19			19.19
174220	Simmons, James	13.43			13.43
173748	Sekins, Edward H		140.00		140.00
172141	Shreve, Benjamin F		103.34		103.34
173737	Spafford, Asa C	271.20			271.20
173475	Steele, Allen P	151.93			151.93
173771	Spickler, Henry K		95.05		95.05
165932	Scott, Austin A	2.91			2.91
162629	Scheid, Peter	3.42			3.42
172958	Shepard, Allen	9.06			9.06
172959	do	1.01			1.01
174532	Scribner, John F		13.94		13.94
174533	Seal, John		29.75		29.75
172754	Samuel, Thomas B			50.00	50.00
171978	Scott, Bradford R	69.87	75.00	50.00	194.87
173177	Stingess, Joseph	6.22			6.22
166603	Spaulding, Amasa	41.50			41.50
166412	Sanders, Elijah	26.86	15.00		41.86
163965	Smith, Thomas	4.85			4.85
167623	Sternberg, Moritz	5.65			5.65
164338	Simons, Alanson	185.75			185.75
172003	Sailor (or Sailer), Daniel	44.83		50.00	94.83
172325	Stafford, John A	75.57			75.57

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	WAR DEPARTMENT—Continued.				
173757	Schwenger, Richard		$200.00		$200.00
167649	Seibt, Herman	$380.97			380.97
172926	Stevens, Royal H	55.28			55.28
173129	Siralls, John T	3.77	100.00		103.77
173796	Shirland, Edmond D	223.45			223.45
173515	Springer, Samuel	6.43	100.00		106.43
173180	Stone, George D		100.00		100.00
174336	Shaw, Edward A	91.58		$50.00	141.58
174021	Starkey, Horace W	123.28			123.28
174182	Sherman, William P	25.61			25.61
164815	Staats, George W	4.01			4.01
164850	Sayre, George W	2.07			2.07
167059	Stempel, Lorenzo	4.30			4.30
172155	Short, Hiram	22.28			22.28
173758	Sheridan, William E		100.00		100.00
164280	Springer, Jacob P	500.40			500.40
164754	Shelts, Marien		100.00	50.00	150.00
173764	Schneithort, John		100.00		100.00
168409	Stewart, Echod	57.18	100.00		157.18
168408	Stewart, Claiborne	12.13	100.00		112.13
172584	Stevens, Philetus A	18.26			18.26
173797	Stombs, Thomas A	60.77			60.77
173789	Sweet, Charles P	98.27			98.27
173480	Seiler, George		195.00		195.00
173719	Seibel (or Sible), John	35.50	240.00		275.50
173169	Sublett, James L	101.00			101.00
174932	Snell, Sylvanus T		100.00		100.00
176122	Slaughter, Benjamin F	18.24			18.24
173168	Shaddinger, Nathan	6.18		50.00	56.18
174150	Strunk, Albert D	266.28			266.28
174381	Schwickardi, William	14.35			14.35
174832	Stokes, Ivin T		100.00		100.00
173780	Smith, Osmond O	65.41			65.41
174910	Simpson, John		250.00		250.00
174820	Stratton, David	39.69			39.69
174033	Stokes, Morgan	162.40			162.40
174660	Shaw, David E	131.83			131.83
173441	Spurrier, Dennis	8.63	200.00		208.63
174057	Siggins, William	.40		50.00	50.40
177960	Sypher, J. Hale	301.60			301.60
153008	Schwartz, George	220.50	56.25		276.75
154995	Swinehart, Eli		100.00		100.00
155908	Somers, David H		28.58		28.58
174975	Sweeney, Job	65.95			65.95
174928	Sanders, John	126.28	100.00		226.28
174929	——do	10.00			10.00
175012	Stevens, William W		100.00		100.00
174652	Shipley, Samuel W	188.74			188.74
169190	Sibley, Emory	74.37	35.00		109.37
169186	Sperry, Eli	54.63			54.63
166646	Saulsman (or Saltzman), William	26.03			26.03
176502	——do	5.00			5.00
174247	Strong, Gadson	12.40			12.40
174248	——do	1.38			1.38
151923	Smithers, Moses	2.80	195.00		197.80
151923½	——do	10.00			10.00
173202	Spavin, Robert		33.33		33.33
174551	Seaman, M. W	85.63			85.63
168656	Sage, John W	2.81			2.81
174101	Speed, James	679.87			679.87
173683	Sabin, Samuel H	61.74			61.74
174956	Smith, Azor A	527.55			527.55
175076	Sinclair, George	7.08			7.08
174038	Starr, Elisha R	51.27			51.27
173669	Story, Solomon		200.00		200.00
173829	Sparks, Benjamin A	102.82	100.00		202.82
173830	——do	10.00			10.00
172236	Spain, John J	4.75			4.75
174557	Stahl, Wilson C	33.75			33.75
173161	Sowle, Charles H	393.12			393.12
173181	Stone, James P		98.68		98.68

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
175811	Smith, Henry H		$230.46		$230.46
175100	Saylor, Alexander	$4.30			4.30
175493	Shelton, James	1.30		$50.00	51.30
172793	Safford, Darius J	71.36			71.36
174108	Spence, John	23.83	100.00		123.83
174065	Soules, George H	147.57			147.57
174943	Smith, Joel H	114.60			114.60
174563	Shumway, Alexander B	159.03			159.03
174657	Sealy, Robert P	48.91			48.91
162784	Storer, John	3.86			3.86
174055	Seaver, John R	283.17	100.00		383.17
165169	Spruill (or Sprewill), Andrew		90.00		90.00
165170	——do		10.00		10.00
165702	Stevens, Jeremiah	2.77			2.77
171234	——do	.31			.31
174218	Steadman, Samuel	9.40			9.40
174219	——do	1.04			1.04
169322	Swords, John W	9.10			9.10
166418	Sponenburgh, Charles W	12.80	15.00		27.80
170686	Stewart, W. Scott	22.29			22.29
175973	Scaife (or Skeith), Joseph	9.50	100.00		109.50
175974	——do	10.00			10.00
174400	Stierlin, Christopher G		50.00		50.00
154557	Stringer, John (alias Henry Johnson)	32.14			32.14
168648	Spencer, Moses	6.20			6.20
165739	Seigler, Frank	2.54			2.54
176495	——do	.28			.28
166045	Saucier, August			25.60	25.60
172741	Schneider, Conrad	34.09			34.09
155962	Swingley, Frederick	97.63			97.63
156294	Schimek, Anton E	21.26	100.00		121.26
174846	Stewart, John		210.00		210.00
173425	Sering, William D		100.00		100.00
165784	Shean, James	6.36			6.36
174944	Stiles, George	12.80	75.00		87.80
170551	Sullivan, Daniel		14.80		14.80
167453	Shaffer, Conrad	18.55			18.55
169402	Staten, Alfred		33.34		33.34
161043	Selvage, John W	17.36			17.36
164017	Swarts, David J	32.70			32.70
167695	Stathem, David T	16.65			16.65
167816	Stanfield, Louis	45.43			45.43
167817	——do	7.50			7.50
149675	Stillwell, John A		100.00		100.00
163683	Sweeney, Morgan		100.00		100.00
164096	Seaton, Mark	12.86			12.86
166058	Stevens, Benjamin T		100.00		100.00
167661	Scanlon, John	4.24			4.24
174837	Strahl, Joseph S	28.13	20.00		48.13
171911	Stewart, John R			100.00	100.00
174949	Smith, Robert	2.65			2.65
146493	Terrell, James	26.00			26.00
146488	Thomas, John W	82.88			82.88
150365	Teaney, Zarah	425.33	160.00		585.33
147020	Thurber, Charles D	33.48			33.48
156761	Taylor, Francis M	61.32			61.32
148310	Turner, J. W	24.52	12.50		37.02
147996	Taylor, John	53.56	100.00		153.56
148279	Torrey, Benjamin F	16.86			16.86
160038	Tracy, William	40.06			40.06
147654	Terry, Miles			100.00	100.00
146265	Templeton, Oscar	295.91			295.91
148361	Tuttle, Russell M	42.29			42.29
148528	Thornberry, Harvey	56.19			56.19
148325	Tucker, Samuel	61.68			61.68
148382	Trusty, William	119.65			119.65
146748	Thurston, Alfred L	45.50			45.50
148956	Tilton, Calvin	303.92			303.92
156838	Thrasher, Luther A	551.71			551.71
147795	Thompson, Robert J	181.64			181.64
148885	Turley, James M		100.00		100.00

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
148390	Thomas, David	$237.92	$100.00		$337.92
148396	Turner, James L	90.21			90.21
156844	Tenney, Abijah D	953.63			953.63
149046	Tucker, William W		100.00	$100.00	200.00
149011	Tremble, Jahne		158.04		158.04
149012	——do		10.00		10.00
147639	Tucker, Elijah F	32.62			32.62
163827	Todd, Robert O	61.19			61.19
148904	Thornton, James M	49.26			49.26
149018	Townsley, James		90.00		90.00
149019	——do		10.00		10.00
149060	Thompson, James W	42.90	75.00		117.90
149022	Trimble, Jerry	17.35	100.00	100.00	217.35
149069	Taggert, Robert H	36.50			36.50
149074	Tinkham, George F	16.13			16.13
149110	Tripp, Joseph P	22.40	75.00		97.40
149612	Taylor, Frederick			50.00	50.00
150176	Toney, Lorenzo D	48.02			48.02
150520	Taylor, Albert	39.45	75.00		114.45
150521	——do	10.00			10.00
148977	Townes, Alfred V	461.54			461.54
149758	Thudium, Mathias			100.00	100.00
149771	Tiedemann, Dietrich F	90.78			90.78
150402	Tresch, Francis	16.98	100.00		116.98
148412	Thompson, William H. C	179.54			179.54
149782	Tobiason, Anders		100.00		100.00
150493	Towle, Ransom W	121.01			121.01
149787	Thompson, William D		100.00		100.00
149774	Tatlock, Erasmus W	102.14			102.14
150935	Truman, Levi		100.00		100.00
150855	Tyler, Casper M	16.61			16.61
151121	Terwilliger, Henry	20.89			20.89
151128	Thayer, George	65.41			65.41
165209	Thurston, Irving H	37.86			37.86
165464	Tutwiler, Henry W	195.73			195.73
146059	Tillson, John	63.95			63.95
150505	Thompson, Samuel M	383.08			383.08
150969	Turner, Selden E	59.56			59.56
150414	Trapp, Jesse	372.25			372.25
150839	Thompson, Joseph C	193.66	100.00		293.66
151519	Turnure, Daniel W	19.71			19.71
151012	Tanner, Cornelius V		100.00		100.00
150968	Thornton William E	203.69			203.69
152077	Trent, Henry C	93.76			93.76
152113	Thompson Orville	72.09			72.09
151011	Teeter, Joseph	81.71			81.71
151880	Treace, Michael S	26.00			26.00
151520	Tilson, William H	18.55			18.55
151529	Triplett, Elsey		100.00		100.00
150984	Thomas, Ambrose B	43.09			43.09
152174	Toon, Daniel	73.12	100.00		173.12
152175	——do	10.00			10.00
165480	Talbert, Jonathan	62.60			62.60
152481	Tolson, Benjamin F		185.00		185.00
153152	Thompson, Henry	12.55			12.55
153153	——do	1.39			1.39
150963	Thomas, William B	121.14			121.14
152016	Thowley, Edward		200.00		200.00
152524	Talbot, Nathaniel H	30.65			30.65
151969	Truesdell, Harrison	40.44			40.44
151186	Tarbell, William H	436.28			436.28
152570	True, William M	183.19			183.19
151907	Trownsell, Charles	3.55	100.00		103.55
153115	Town, Sylvester R	28.53			28.53
153712	Tallman, James F	77.87			77.87
151567	Tillack, William	42.46	100.00		142.46
153088	Taylor, Mahlon		200.00		200.00
151009	Toggenburger, Frederick		100.00		100.00
151985	Trace, Andrew J		55.00		55.00
153759	Townsend, John P	18.42			18.42
167870	Thornett, Thomas B	60.76			60.76

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
151221	Toomey, John	$49.88			$49.88
151898	Timberlake, Luther	255.15			255.15
151545	Turner, Alfred		$160.00		160.00
150988	Templeton, Thomas G		24.22		24.22
153724	Twohig, Daniel	228.77	100.00		328.77
153757	Tulip, Napoleon	34.80			34.80
147748	Thompson, James P	27.60			27.60
153787	Tirrell, Alfred W	310.10			310.10
154601	Talcott, Harvey D	136.19			136.19
168085	Thorpe, Samuel	122.73	115.00		237.73
168086	——do	10.00			10.00
153776	Terria, Edward		33.34		33.34
152615	Tate, P. H	4.50			4.50
152616	Tate	4.50			4.50
153738	Tomlinson, Henry	84.08			84.08
153878	Thompson, John T	100.88			100.88
154042	Thorn, Albert	6.93			6.93
153112	Tait, George F	43.66			43.66
154650	Turner, Nicholas	30.04			30.04
154651	——do	5.00			5.00
154724	Turner, Warren		80.00		80.00
154992	Tennent, William H	11.87			11.87
127637	Titus, Philip	24.39		$100.00	124.39
151550	Tones, Walter	64.80			64.80
154619	Turner, Daniel W	337.95			337.95
153828	Tisdel, James M	27.79			27.79
154064	Townsend, Charles C	79.18			79.18
154068	Thomas, Findley I	88.52			88.52
154069	Tearney, James	100.48			100.48
153440	Tevis, Isaiah M	26.97			26.97
154993	Trump, Joseph	6.97			6.97
154628	Thompson, Dennis	1,168.03			1,168.03
152578	Turney, Francis	34.65	100.00		134.65
152629	Thompson, Isaac M		200.00		200.00
153469	Torr, William H	346.91			346.91
155025	Tucker, Ryan	30.33			30.33
155714	Tittler, Allen	7.42			7.42
155408	Titus, Silas	191.67			191.67
155673	Thacker, Elisha	340.73			340.73
163471	Tincher (alias Edwards), Henry	107.79	75.00		182.79
153880	Thompson, Robert Q	121.07			121.07
155187	Townsend, William R	13.90			13.90
155246	Tracy, Andrew W	163.62			163.62
155427	Tallman, William A	11.34			11.34
171133	Teed, William J	278.03			278.03
166193	Taylor, Solomon D		19.95		19.95
155860	Thompson, Absalom P	13.35			13.35
152596	Turner, Francis M	303.46			303.46
155847	Taylor, William C	82.61			82.61
156673	Tiemeyer, John A	83.82			83.82
156717	Tinder, Lundesfield J	232.88			232.88
163716	Thompson, Bradford F	46.84			46.84
163838	Taylor, James		100.00		100.00
163839	Tacket, Lewis E	4.33			4.33
164253	Thomas, Abraham W	33.25			33.25
164254	Thompson, John			100.00	100.00
156727	Tainter, Dean W		100.00		100.00
155778	Taylor, Alexander H	400.72			400.72
155869	Tweed, Elisha J	359.52		50.00	409.52
155909	Tyler, Elias M		100.00		100.00
163726	Thompson, Thomas J	23.15			23.15
163812	Taylor, John		25.00		25.00
171143	Thompson, John V	43.04			43.04
156855	Titus, Elisha B	13.92			13.92
155683	Tinsley, James H	332.83			332.83
156289	Turritin, James B	18.86			18.86
154061	Taylor, James T	15.16			15.16
163821	Thorniley, William	215.20			215.20
164268	Teeters, Eli		200.00		200.00
166085	Talcott, Henry W	2.10	100.00		102.10
156139	Thompson, Lee		94.24		94.24

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
156140	Thompson, Lee	$4.24	$5.76		$10.00
164626	Thomas, Isaac N	176.87			176.87
164743	Tourgee, Albion W	129.63			129.63
164758	Treat, William	166.09			166.09
166014	Tyson, Isaac	28.99	$195.00		223.99
163045	Thomas, Peter	10.07			10.07
163044	Taylor, Sandy	9.07			9.07
171215	do	1.00			1.00
162124	Trotter, Daniel	4.08			4.08
164288	Thomson, James	67.34			67.34
164761	Thornton, Columbus T	86.84			86.84
165854	Templeton, Leroy	100.20			100.20
165895	Tillson, George M	143.64			143.64
165860	Townsend, Charles H		210.00		210.00
164622	Temple, David J	379.30			379.30
165187	Tucker, Horace		80.00		80.00
164188	Tiemann, Wm. F	74.60			74.60
170083	Troy, Lewis L	194.19			194.19
164428	Totty, John		85.69		85.69
165882	Tubbs, Asa E	100.62			100.62
166226	Tingle, Joseph	281.23			281.23
165868	Thibodo, Stephen		210.00		210.00
166431	Thompson, Ellery H	66.27	15.00		81.27
156985	Toothaker, James S	3.50	120.00		123.50
165041	Turnham, Thomas R	60.44			60.44
163804	Taylor, Reuben B	87.57		$50.00	137.57
165159	Tippins, Jasper		98.68	100.00	198.68
165160	do	8.68	1.32		10.00
166042	Turner, Henry	44.16	100.00		144.16
166043	do	10.00			10.00
166026	Taylor, Zachariah	42.44	33.33		75.77
166027	do	7.50			7.50
167024	Thurman, Washington		90.00		90.00
167025	do		10.00		10.00
155407	Thorp, William G. H		55.94	100.00	155.94
166241	Thomas, Joseph	25.62			25.62
164647	Trimble, John	80.29			80.29
167773	Taylor, James A	337.04			337.04
166666	Taggart, Samuel	154.84		50.00	204.84
167856	Thomas, John J	4.10	160.00		164.10
167822	Tucker, Erasmus	36.47			36.47
167823	do	5.00			5.00
165470	Tull, Samuel	35.27			35.27
166408	Tawney, Jennings		25.00		25.00
167580	Travis, Sanford	75.31			75.31
167860	Taylor, Henry	15.07	15.00		30.07
168493	Thomas, John F	385.77			385.77
165867	Temple, William H	111.64			111.64
166995	Tyrone, Christopher G	99.93	100.00		199.93
168340	Thompson, James W	29.80			29.80
168772	Tilson, John	150.05			150.05
165471	Templeton, Robert J		83.34		83.34
168555	Turk, Louis		118.35		118.35
168556	do	8.35	1.65		10.00
168101	Teal, Norman	34.05			34.05
167593	Toy, Andrew J		75.00		75.00
168336	Tolliver, Jacob M	85.69			85.69
173118	Teachout, Peter A		75.00	100.00	175.00
167885	Tunbridge, Thomas H		100.00	100.00	200.00
167330	Tyler, James L	68.56			68.56
172906	Tomkins, Ira H. (alias Edward Thomas)	15.30		100.00	115.30
167235	Turney, Daniel M	282.55			282.55
167809	Terwilliger, Chas. T	310.21			310.21
167010	Talcott, Edwin J	37.81			37.81
169374	Teller, Ralph R	3.54		50.00	53.54
168790	Thomas, Chas. L	15.72			15.27
168785	Tinder, Samuel M	539.34			539.34
170106	Turner, George (alias Clay)	7.06	100.00		107.06
170107	do	10.00			10.00
168410	Thompson, Stephney	8.04			8.04
170131	do	.89			.89

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	WAR DEPARTMENT—Continued.				
167804	Thompson, James L	$363.36			$363.36
170130	Thomas, Washington		$50.00		50.00
167916	Temple, Andrew J	302.00			302.00
168103	Thompson, Milton		200.00		200.00
168394	Thomas, George	42.76	60.00		102.76
168395	——do	10.00			10.00
174410	Thayer, Robert		100.00		100.00
167923	Templeton, John S	359.24			359.24
170225	Trigg, Robert	7.80	100.00		107.80
153226	Toombs, James M	41.29			41.20
172800	Tinsman, Daniel S	92.53		$50.00	142.53
164776	Taylor, Daniel D		16.67		16.67
170067	Trafton, George W	200.54			200.54
166179	Tompson, Charles E	15.02			15.02
170066	Teeple, Addison V	368.23			368.23
167278	Turner, George	151.49	300.00		451.49
170402	Thompson, John W	59.27			59.27
169879	Tibbils, Charles	40.45	100.00		140.45
170398	Tantum, John M	58.62			58.62
162630	Thode, Frederick	3.41			3.41
170607	Tingle, Emory		80.00		80.00
170637	Trowbridge, Lewis C	224.53			224.53
156724	Thompson, John E		90.72		90.72
170653	Thomas, Edwin E	321.51			321.51
169165	Thomas, August	20.13			20.13
170448	Taggart, Robert	29.10			29.10
171274	Turner, George		93.51		93.51
171275	——do	3.51	6.49		10.00
169240	Thoeny, Matthias	13.01	100.00		113.01
171540	Taylor, Sylvester J	60.53			60.53
171283	Thomas, Lemuel		92.40		92.40
171284	——do	2.40	7.60		10.00
171272	Thomas, Frank		190.00		190.00
171273	——do		10.00		10.00
171498	Turner, William	9.06			9.06
171499	——do	1.01			1.01
177251	Tilford, George W	854.25			854.25
84285	Tanner, William F		25.75		25.75
166191	Thompson, S. Frank	3.30	100.00		103.30
171535	Tuttle, William E	292.69			292.69
170245	Thompson, Welcome A	57.25	120.00		177.25
169249	Theis, John H	56.76			56.76
171588	Thorp, Charles W	63.32			63.32
171977	Thompson, Joseph S	32.25			32.25
170887	Trimble, John J	39.78			39.78
173111	Torrens, Joseph	46.39			46.39
171547	Tallman, George F	68.32			68.32
171203	Tompkins, Daniel S	176.08	100.00		276.08
172184	Tucker, Isaac N	230.90			230.90
172220	Towner, Henry A	153.86			153.86
48841	Thomas, Zachariah E	34.86	100.00		134.86
171864	Tourtellotte, John E	6.65			6.65
173174	Thacher, Theron A	26.13			26.13
173813	Thompson, Miles	76.97			76.97
173814	——do	7.50			7.50
171597	Terwilliger, George		50.00		50.00
171481	Tower, Anson K	230.46			230.46
171195	Travis, Benjamin F	4.46			4.46
170871	Thompson, James W	11.52			11.52
172040	Thompson, Ralph L	8.68	75.00	100.00	183.68
171986	Talbot, John	67.43			67.43
166200	Thayer, William F	126.22			126.22
171473	Thompson, Abram J	99.52			99.52
171927	Thomas, Frank M		75.00		75.00
172905	Thorn, Daniel B. L		100.00		100.00
173694	Thompson, Heber S	167.20			167.20
171486	Tucker, Abraham B	7.77	25.00		32.77
172001	Thorn, Henry	52.00			52.00
161814	Traver, Eugene D	35.25			35.25
172907	Turck, William S	115.19			115.19
171452	Tiffany, Patrick	4.34	335.00		339 54

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	WAR DEPARTMENT—Continued.				
168562	Tippit, Effit or Effle	$32.00			$32.00
173644	Tyler, Edmund	18.10	$50.00		68.10
173645	....do	7.50			7.50
173478	Tuttle, Luther M	46.36			46.36
174015	Turnbaugh, Andrew	14.74	21.42		36.16
147903	Todhunter, Thomas S	122.20			122.20
163811	Turner, Stephen C		100.00		100.00
175053	Thrall, Homer	92.09			92.09
174892	Tate, Samuel	4.40	300.00		304.40
174893	....do	10.00			10.00
174931	Tice, Peter C		100.00	$50.00	150.00
172775	Timberlake, William H	194.95	100.00		294.95
174025	Travers, James J	294.77			294.77
174976	Thompson, John M	99.71			99.71
174068	Tenney, Horace A	58.52			58.52
173723	Taylor, William	51.34			51.34
173774	Templin, Jacob B	5.21		50.00	55.21
176350	Tinker, Sibre W	11.66			11.66
173728	Temple, Isaac C	130.69			130.69
166268	Tinker, Isaac N	3.25			3.25
162865	Taylor, George W	33.82			33.82
172799	Thornburgh, John	66.54			66.54
174649	Thomas, John	3.32			3.32
174650	....do	.36			.36
174553	Talbott, Benjamin C	27.30		50.00	77.30
174552	Thompson, George W	58.53			58.53
172068	Tammadge, Henry	115.54			115.54
175772	Thomas, Joseph		100.00		100.00
174097	Tuttle, Merrill S	20.51			20.51
171994	Thompson, Robert. (*See* Robert Wright.)				
174955	Tallman, William H	100.19	50.00		150.19
174633	Taylor, Charles		19.43	50.00	69.43
174634	....do		7.50		7.50
168187	Thompson, Edward G	3.09			3.09
172595	Thompson, William H		33.57		33.57
168946	Tracy, William V	4.94			4.94
167656	Tracy, William H	4.06			4.06
166292	Thoms, John	8.83			8.83
171511	Taylor, Doctor	107.76	100.00		207.76
163454	Tanfield, James W	5.16		50.00	55.16
167866	Tyron, Levi		25.00		25.00
173666	Thornton, Thomas M	4.72			4.72
173734	Thompson, Samuel M		147.76		147.76
163771	Updegraff, Clarence E	343.88			343.88
156802	Uline, Barney	288.65			288.65
165441	Ulrick, Rudolph	13.43			13.43
166496	Ulrich, William		100.00		100.00
168357	Upson, Joseph B	159.26	100.00		259.26
168376	Upshaw, Henry	6.75	120.00		126.75
169908	Understock, Mathias	160.58			160.58
174847	Underhill, Edward H	120.29			120.29
165351	Underwood, James	85.90			85.90
146008	Van Dake, Franklin R	282.81			282.81
145262	Van Loo, Cornelius	456.74			456.74
147197	Volkman, Louis	92.87			92.87
151145	Van Gieson, Edwin	1,361.00			1,361.00
146031	Viall, John G	110.18			110.18
142986	Van Derveer, John H	34.33			34.33
145767	Vanzandt, Joseph P	7.45	25.00		32.45
155564	Vincent, James H	27.10			27.10
143663	Van Horn, Benjamin F	14.55			14.55
155982	Vidlene, William	93.56			93.56
146103	Vanwinkle, Joseph W	29.91			29.91
155549	Vick, William J	6.78			6.78
148247	Voorhees, Matthew V. D	97.96			97.96
148329	Volenstein (or Wollenstein), Frederick			50.00	50.00
148334	Vincent, Eli A	47.72			47.72
147785	Van Epps, Herman A	63.61			63.61
149010	Van Kirk, Samuel H	53.67			53.67
149639	Vore, Harrison O	42.41			42.41
149652	Valentine, James M	68.69			68.69

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
150415	Valentin, Henry A	$419.13			$419.13
165079	Venter, Enoch	60.00			60.00
148989	Vance, Louis P	223.64			223.64
154555	Van Vliet, Alfred H	52.73			52.73
152553	Vanaman, James B		$100.00		100.00
152103	Veatch, Harmon	176.03			176.03
153051	Vonbiber (or Vanbibber), Isaac C		200.00		200.00
156987	Van Cleve, Horatio P	23.94			23.94
155165	Van Meter, Henry	101.21			101.21
152626	Vimont, Thomas T	31.22			31.22
121937	Van Valkenburgh, Albert R	564.15			564.15
155453	Van Houten, Charles R	153.96			153.96
155760	Van Ormer, William W	29.43			29.43
154851	Vickery, Charles	431.09	100.00		531.09
155014	Vaughan, A. M. (alias Wm. Burch)	19.25	15.00		34.25
155765	Vandergrift, Charles C. V	340.28			340.28
154797	Violet, Samuel B	5.44			5.44
148346	Vaughan, Elijah			$33.34	33.34
155861	Voiles, James C. E	11.82			11.82
153519	Venard, Mary	12.00			12.00
163855	Vanzandt, Elijah		200.00		200.00
163768	Van Cleve, John B	214.50			214.50
163491	Van Winkle, William R	159.45			159.45
164182	Van Nostrand, Timothy	662.58			662.58
164170	Van Hoesen, Garret S	184.18			184.18
156615	Vermilya, Edgar A	109.37			109.37
164772	Van Voorhes, Nelson H	118.03			118.03
156687	Voss, Louis	25.22			25.22
165173	Vinson, Felix W	153.75			153.75
156708	Vaughan, William R	8.76			8.76
165874	Vickers, Harvey D	131.66			131.66
166691	Virgil, David	18.20			18.20
154736	Villemin, Joseph		335.00		335.00
166104	Victor, John	25.98			25.98
166105	——do	5.00			5.00
167337	Vance, Hugh	2.81	100.00	50.00	152.81
167778	Van Patten, John B	71.50			71.50
167900	Vanderwort, James	746.55			746.55
167387	Vernon, Geo. W	19.20			19.20
156701	Varrelman, Ferdinand	353.93			353.93
168338	Van Benthusen, James	35.03			35.03
169894	Volk, Philipp	317.63	33.33		350.96
169899	Varon, Joseph	13.64			13.64
166989	Vandergriff, John B	155.54			155.54
45199	Vince, Eugene	36.35			36.35
169238	Victory, James	2.32	260.00		262.32
169248	Vanbebber, Calvin	6.73	100.00		106.73
171197	Vosper, Mason	72.26			72.26
171971	Van Etten, Thomas	34.15			34.15
176782	Vedder, Nichols	7.09			7.09
172332	Van, Wesley	9.06			9.06
172333	——do	1.01			1.01
173101	Van Arsdale, Peter	46.21			46.21
172007	Vanhise, Isaac	3.46			3.46
173465	Viets, Frank	91.90			91.90
172601	Varley, Orestus M		100.00		100.00
173140	Van Pelt, William D	34.02			34.02
172744	Vaughan, John	26.10			26.10
169162	Vernon, Elijah			100.00	100.00
172314	Veeder, Charles S	26.57	75.00		26.57
173497	Vanderhoof, John M	3.55			78.55
172771	Vaughan, Aaron C	41.96			41.96
170690	Van Osdel, John M	328.36			328.36
172920	Vance, Henry	14.39			14.39
169590	Van Fleet, Ezekiel B	107.57			107.57
173522	Vance, Daniel J	96.08			96.08
170865	Vincent, Thatcher	353.82			353.82
174542	Van Gundy, William	101.89	33.33		135.22
175023	Veatch, John J	93.23			93.23
174221	Vanzego, Frederick. (*See* Fred Nanzego.)				
173193	Vorce, William H	75.07	160.00		235.07

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
172088	Viers, Thomas C	$0.55	$100.00		$100.55
174384	Vandermark, Emanuel	90.66			90.66
174546	Van Fleet, Martin N	138.33			138.33
170496	Vanduzer, James	2.82			2.82
168235	Van Leuven, Jacob	3.10			3.10
165457	Van Matre, Cyrus	154.50			154.50
173123	Van Buren, Hiram	15.89	20.00		35.89
173430	Vatchet, William D	86.01	100.00		186.01
146012	Williams, George J	120.77	33.33		154.10
147300	Whitney, Armstead	12.57			12.57
147301	——do	1.40			1.40
154344	Ward, Ransom	932.17			932.17
145266	Woodman, Joseph H. (or J. Hamilton)	105.24			105.24
154330	Ward, Richard G	649.40			649.40
148970	Wood, Thomas	113.19			113.19
146015	Wright, David F	10.67			10.67
146017	Wilcox, Robert F		100.00		100.00
146875	Whiteman, William	345.45			345.45
146726	White, Ephram G	7.22			7.22
155009	Ward, William H	28.43			28.43
153073	Waggoner, Edwin B	452.90			452.90
154848	Walbridge, James H	99.53			99.53
140967	Wolf, Philip N	5.47	100.00		105.47
146450	Williamson, Eleazer	26.62			26.62
147010	Weaver, Erastus C	56.27			56.27
156025	Walden, Calvin	6.50			6.50
149844	Woodworth, Ebenezer F	30.76	100.00	$100.00	230.76
146077	Westerman, William L	20.19			20.19
158992	Wiley, Daniel	6.65			6.65
154533	Wagen, Carl (or Karl)	14.95			14.95
156310	Woodman, Lucius C	140.03			140.03
155904	Williams, Stephen J	356.93			356.93
154719	Wingard, Hiram	46.36	100.00		146.36
150178	Wert, Henry J. F		75.00		75.00
135949	Waldron, Erastus C	145.16	75.00	100.00	320.16
146148	Wooding, Charles T	140.31			140.31
148535	Wright, Hiram J	34.34	100.00		134.34
146851	White, Benjamin R	68.40	200.00		268.40
147327	Willoughby, Martin W	125.85			125.85
147791	Wade, Sidney B	27.85			27.85
153714	Wood, Osmar J	98.24			98.24
146105	Whallon, Thomas	135.28			135.28
146468	Williams, Andrew J	183.26			183.26
153036	Williamson, Washington F			50.00	50.00
146733	Weeks, Charles E		100.00		100.00
148513	Wood, Reuben R	6.78			6.78
157866	Walker, Stephen	6.65			6.65
148304	White, Robert S	12.38	275.00		287.38
163714	Worcester, David	397.81			397.81
148243	Walsh, William	12.11			12.11
146097	Whitworth, William H	6.32	40.00		46.32
147644	Williams, George W	122.00			122.00
146143	Wormer, Grover S	102.03			102.03
147339	Weeks, Myron		20.00		20.00
148246	Wilkinson, William	154.35			154.35
148305	White, Robert H	3.36			3.36
147230	Wolfe, Harvey S	70.94			70.94
148506	White, Martin		90.00		90.00
148507	——do		10.00		10.00
148329	Wollenstein, Frederick. (*See* Fred'k Volenstein.)				
111361	Whittinghall, Thomas J		57.70		57.70
148262	Wilson, Thomas B			100.00	100.00
156833	Williams, James M	243.63			243.63
156729	Woodworth, Horace G	125.91			125.91
147661	Wilkinson, Royal B	48.52			48.52
147664	Wilson, Hugh		160.00		160.00
148255	Watson, Columbus		200.00		200.00
147735	Willis, Phlegmon W	207.69			207.69
148899	Wright, George W	28.80			28.80
148960	White, Thomas C		335.00		335.00

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	WAR DEPARTMENT—Continued.				
147738	Wicker, James T	----------	$300.00	----------	$300.00
149088	Wiggin, Frank	$287.24	----------	----------	287.24
148563	Wilson, John F	80.47	----------	----------	80.47
148842	Wood, Lysander	22.05	----------	----------	22.05
163862	Wilson, John	281.70	----------	----------	281.70
146910	Weber, William M	7.76	100.00	----------	107.76
147658	Walker, James	46.55	25.00	----------	71.45
147780	White, Salem (or Selim)	81.19	----------	----------	81.19
147784	Wright, James M	131.40	----------	----------	131.40
149597	Walrath, Levanton	----------	100.00	----------	100.00
149754	Wayman, Asa	48.80	----------	----------	48.80
149049	Williams, Henry (H)	----------	----------	$100.00	100.00
149054	Witt, George	17.62	----------	----------	17.62
148453	Warren, John W	52.66	----------	----------	52.66
148456	Wasson, John N	38.14	----------	----------	38.14
148969	Williams, James M	7.94	----------	----------	7.94
149114	Whitsit, John A	37.29	----------	----------	37.29
149596	Willett, Ellory P	----------	----------	100.00	100.00
150396	Walker, Lewis	146.16	----------	----------	146.16
150823	Walker, William	101.01	----------	----------	101.01
149751	Watson, William P	----------	48.40	----------	48.40
141909	Williams, Asa (C)	13.43	100.00	----------	113.43
146147	Williamson, John W	111.28	----------	----------	111.28
164701	Williams, David O	50.37	100.00	----------	150.37
148910	Wheeler, Elijah H	18.11	35.00	----------	53.11
149564	Wilcox, Martin V	6.07	----------	50.00	56.07
150356	Wilson, Robert	267.71	----------	----------	267.71
149775	Wells, Isaac A	----------	100.00	----------	100.00
149823	Warren, Frank	93.23	100.00	----------	193.23
149824	------do	10.00	----------	----------	10.00
165107	Winters, George W	139.66	----------	----------	139.66
150532	Whitley, Samuel	----------	290.40	----------	290.40
150533	------do	.40	9.60	----------	10.00
153064	Wood, David J. M	93.03	----------	----------	93.03
149101	Woodward, Llewellyn D	14.39	----------	----------	14.39
150408	Wiley, James M	62.28	----------	----------	62.28
149618	Welch, Thomas	----------	200.00	----------	200.00
151022	Wagner, Benjamin R	86.88	----------	----------	86.88
149135	Williston, Leander A	73.70	----------	----------	73.70
149040	Wilson, John P	36.39	----------	----------	36.39
149133	Wolfe, Edward H	33.40	----------	----------	33.40
150216	Wheeler, John	----------	100.00	----------	100.00
150226	Williams, Harrison H	37.18	----------	----------	37.18
148018	Ward, John	13.60	----------	----------	13.60
148451	Woodruff, Freeman	202.78	----------	----------	202.78
148986	Wilhelm, Henry	----------	100.00	----------	100.00
150367	Wright, Thomas	----------	50.00	----------	50.00
161699	Wright, William B	----------	100.00	----------	100.00
148988	Ware, William E	30.08	----------	----------	30.08
150797	Wilson, John R	47.01	----------	50.00	97.01
164425	Williams, Thomas M	69.20	100.00	----------	169.20
139414	Wood, William F	448.35	----------	----------	448.35
150228	Whitney, William G	69.32	----------	----------	69.32
150384	Westry, John	----------	----------	50.00	50.00
151104	Watson, George L	11.46	----------	----------	11.46
151105	------do	1.27	----------	----------	1.27
151151	Westcott, Asahel B	247.94	----------	----------	247.94
150508	White, Daniel S	39.77	----------	----------	39.77
151153	Wahlberg, Alfred	----------	100.00	100.00	200.00
148841	Waugh, Henry H	24.03	----------	----------	24.03
148947	Whiting, Henry	178.54	----------	----------	178.54
150401	Winram, Samuel B	----------	100.00	----------	100.00
151205	Wilson, Mark	----------	200.00	----------	200.00
151551	Wright, Robert W	240.53	----------	----------	240.53
149138	White, Fieldon B	----------	100.00	----------	100.00
148030	Waelti, John	13.43	37.50	----------	50.93
149579	Warrington, John A	41.00	----------	----------	41.00
150854	White, James E	31.99	----------	----------	31.99
150933	Wells, Perry	49.12	----------	----------	49.12
151073	Williams, Save	24.43	----------	----------	24.43
151074	------do	5.00	----------	----------	5.00

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	WAR DEPARTMENT—Continued.				
151088	Wade, Lawrence	----------	$1.35	----------	$1.35
151089	------do	----------	.15	----------	.15
151199	Warnoch, Benjamin F	----------	25.00	----------	25.00
151518	Wilson, Newton	----------	33.34	----------	33.34
151568	Washburn, Charles	$220.58	----------	----------	220.58
151603	Williams, Ralph	----------	100.00	----------	100.00
151914	Washington, George (first)	30.00	100.00	----------	130.00
151917	Weston, David	----------	90.00	----------	90.00
151918	------do	----------	10.00	----------	10.00
152623	Winfrey, Thomas C	317.53	----------	----------	317.53
150833	Watson, Henry	5.01	100.00	----------	105.01
148404	Whetsell, William L	45.06	75.00	----------	120.06
150421	Watts, Michael B	7.80	----------	----------	7.80
152002	Winters, Charles F	----------	200.00	----------	200.00
151552	Wanke, Ludwig	50.24	75.00	----------	125.24
148584	Williams, Edward E	17.46	----------	----------	17.46
151951	Wiles, Abraham	----------	100.00	$100.00	200.00
151933	Wilkins, Phillip	13.00	----------	----------	13.00
150999	Weaver, James T	----------	100.00	----------	100.00
151513	West, Samuel G	54.40	100.00	----------	154.40
149655	Wilson, Isham W	48.60	----------	----------	48.60
151197	Wilkins, Benjamin C	207.74	----------	----------	207.74
146064	Warden, James K	419.99	----------	----------	419.99
148421	Warren, Lot	4.50	----------	----------	4.50
152111	Walsh, Thomas (alias Henry)	----------	193.50	----------	193.50
151207	Windsor, John S	50.04	----------	----------	50.04
151944	Wilson, Isaac	8.60	100.00	----------	108.60
151945	------do	10.00	----------	----------	10.00
153000	Willits, Henry L	220.47	----------	----------	220.47
165909	Whitney, Moses M	129.54	----------	50.00	179.54
152511	Wood, Davis B (alias Davis Barton)	34.66	100.00	----------	134.66
152514	Walton, Simeon	77.76	----------	----------	77.76
148984	Wilson, James R	255.96	----------	----------	255.96
151972	Williams, Charles	1,110.86	----------	----------	1,110.86
152167	Wagner, Lewis	186.72	100.00	----------	286.72
152168	------do	10.00	----------	----------	10.00
153157	Williams, Henry	----------	90.00	----------	90.00
153158	------do	----------	10.00	----------	10.00
150177	Whiteford, John	1,005.79	----------	----------	1,005.79
150975	Weltner, James A	72.30	----------	----------	72.30
150953	Witherspoon, Alexander	205.74	----------	----------	205.74
151576	Watson, Samuel C	3.54	100.00	----------	103.54
152176	Wilson, James A	60.52	----------	----------	60.52
152177	------do	7.50	----------	----------	7.50
152178	Wright, Cornelius	----------	96.20	----------	96.20
152179	------do	6.20	3.80	----------	10.00
152482	Welch, John	----------	200.00	----------	200.00
153035	Whidden, W. Hampton	99.60	90.00	100.00	289.60
151895	Webb, Edward A	51.69	----------	----------	51.69
152554	Wood, William J	----------	100.00	----------	100.00
152560	Woolsey, Edwin W	36.72	100.00	----------	136.72
151534	Workman, Philip	----------	33.34	----------	33.34
152477	Welsh, John	12.64	----------	----------	12.64
152533	Weston, Christopher C	15.96	----------	----------	15.96
153071	White, Charles	125.49	----------	----------	125.49
152543	Watrous, Aaron D	3.15	----------	----------	3.15
152529	Wyman, Spencer M	----------	----------	50.00	50.00
153012	Waule, Emory	----------	235.00	----------	235.00
153130	Washburn, John	----------	120.00	----------	120.00
153796	Westfall, Daniel	77.30	----------	----------	77.30
152548	Weinberg, Carl. (*See* Fred. C. Pratz.)				
150210	Walker, Porter J	----------	100.00	----------	100.00
150977	Witherspoon, John	21.32	----------	----------	21.32
153091	Woodward, Gilbert M	22.95	100.00	----------	122.95
167578	Welch, Benjamin W	376.42	----------	----------	376.42
70230	Webb, Richard H	----------	100.00	----------	100.00
150982	Welton, Everard B	542.40	----------	----------	542.40
151025	Whitcomb, Edward	48.90	----------	----------	48.90
152078	Whitson, Charles B	26,24	100.00	----------	126.24
153127	Williams, Jeremiah	124.94	----------	----------	124.94
151584	Wheeler, William M	----------	75.00	----------	75.00

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	WAR DEPARTMENT—Continued.				
151887	Welker, William H	$184.38			$184.38
152564	Welch, Michael		$100.00		100.00
153021	Warner, Jerome B	386.77			386.77
153143	Weidman, George D	54.07			54.07
153801	Walker, William W	90.11			90.11
164781	Walter, John C	54.51			54.51
152147	Wildey, John	30.80	100.00		130.80
152497	Waller, Benjamin R	10.65			10.65
154037	Wilson, Lewis E		100.00		100.00
153093	Wright, Wesley	11.61			11.61
153187	Welch, Charles	104.36			104.36
153188	——do	10.00			10.00
152550	Walker, Joseph, jr	14.47			14.47
153773	Ward, Byron C	71.47			71.47
154553	Walter, Sidney	68.26	60.00		128.26
148425	Williams, Jonathan	4.50			4.50
153101	Winchell, Don A	56.68			56.68
159599	Walker, Henry J	214.75			214.75
153454	Williams, Avery B	31.52	33.33		64.85
153098	Wright, John N	262.63			262.63
153868	Washington, Alexander		90.00		90.00
153869	——do		10.00		10.00
154634	Werrell, Jacob	50.06	100.00	$100.00	250.06
154635	——do	10.00			10.00
153731	Wilson, John		100.00	100.00	200.00
153745	Walton, Frederick W	68.25			68.25
53804	Worrell, James P	276.45			276.45
154051	Walker, George W	48.53			48.53
154566	White, Andrew	5.98	37.50		43.48
154567	Westbrook, Albert E	60.60			60.60
148538	Williamson, William T	33.44			33.44
153736	Wilgus, Thomas	6.97			6.97
152484	White, Fielding W		210.00		210.00
152526	Woodward, Philip G	264.33			264.33
154194	Washburn, Stephen G	85.75			85.75
154590	Wilson Charles A	48.53			48.53
154663	Williams, Abraham	130.98	100.00		230.98
154664	——do	10.00			10.00
154584	Wales, Jefferson		200.00		200.00
154052	Whitaker, Edwin B	83.65			83.65
155021	Weed, Jonathan P		100.00		100.00
152017	Williams, Hiram		300.00		300.00
152528	Whitney, Harlen H		100.00		100.00
154564	Wallace, Peter			100.00	100.00
154802	Widerman, Philip D	19.24			19.24
154820	Walsh, Michael	101.64			101.64
155671	Wyatt, Delaney W	120.84			120.84
169627	Walker, John B	101.71			101.71
155348	Ward, Charles J		294.90		294.90
155349	——do	4.90	5.10		10.00
154574	Woodcox, Benjamin B	410.91			410.91
152601	Wyman, John			100.00	100.00
155450	Westbrook, Abram J	21.34			21.34
146885	Winters, George T	101.38			101.38
153898	Wilcox, George Holmes		61.60		61.60
147749	Willhelm, Alexander W	231.33			231.33
154030	Wayne, Thomas	64.93			64.93
154850	Welcome, John B (alias John Gendron)	43.50			43.50
155013	Williams, Adam	76.40			76.40
155161	Walker, Samuel	102.58			102.58
155234	Wheeler, John T	38.89			38.89
155834	Weatherholt, Francis M		25.00		25.00
156120	Ward (or Wood), George	15.34			15.34
156121	——do	1.70			1.70
154822	White, Nelson	9.88			9.88
155238	Whitney, George J	196.79			196.79
141484	Whitlock, John F	29.20			29.20
170392	Whitlock, Andrew	46.00	25.00		71.00
156010	Warner, Almon	74.31			74.31
155977	Watson, James	80.39			80.39
155877	Ware, John	229.52			229.52

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
154579	Watson, Gabriel	----------	$75.00	----------	$75.00
153110	Wright, William	$26.79	174.00	----------	200.79
155326	Woods, Bryant	----------	12.80	----------	12.80
155327	------do	----------	1.43	----------	1.43
155780	Warriner, Benjamin H	69.17	----------	----------	69.17
146020	Wayman, Nelson	40.96	----------	----------	40.96
155205	Weems, Robert H	62.86	----------	----------	62.86
155043	Whissen, Amos A	81.68	----------	----------	81.68
163063	Willis, Creed	8.27	----------	----------	8 27
152322	------do	.92	----------	----------	.92
148308	Weatherby, John R	----------	21.19	----------	21.19
153360	Wells, Wesley A	65.00	----------	$100.00	165.00
163054	White, Alexander	8.27	----------	----------	8.27
152326	------do	.92	----------	----------	.92
152043	Weston, John F	69.44	----------	----------	69.44
136941	Wholey, John (alias John H. Cary)	55.21	----------	----------	55.21
147830	Williamson, F. M. B	53.58	75.00	----------	128.58
152054	Warren, Joseph F	31.20	----------	----------	31.20
154711	Wilson, Henry M	46.00	----------	----------	46.00
156599	Whithey, Fayette	116.85	----------	----------	116.85
156609	Woodward, Datus	81.10	----------	----------	81.10
156676	Wisner, David	21.60	----------	----------	21.60
156677	Wilcox, William A	80.82	----------	----------	80.82
156714	Wilson, James I	123.89	----------	----------	123.89
156858	Wilson, Charles T	63.80	----------	----------	63.80
163483	Wright, Richard	68.95	----------	----------	68.95
163502	Wallace, William J	----------	80.00	----------	80.00
162625	Wiswell, John B	272.88	----------	----------	272.88
163753	Williams, Milton	37.60	----------	----------	37.60
163837	Whitley, Jasper	4.71	----------	----------	4.71
156197	Winters, Joshua C	73.21	----------	----------	73.21
163479	Weuchselbaum, John	16.53	----------	----------	16.53
163485	Wheeler, Alonzo A	44.93	----------	----------	44.93
163712	Westcott, James	6.39	40.00	----------	46.39
163769	Wray, Marion	77.94	----------	----------	77.94
163848	Wimberly, James L	19.51	----------	----------	19.51
164252	Winters, Joy	191.76	----------	50.00	241.76
155261	Wells, John B	76.52	----------	----------	76.52
156725	Walker, Thomas H	144.74	----------	----------	144.74
163779	Wishart, James	150.25	----------	----------	150.25
163637	Ward, William H	8.53	120.00	----------	128.53
156856	Wilson, Zaccheus C	----------	----------	50.00	50.00
31999	Wren, Daniel B	139.07	----------	----------	139.07
163490	Wait, Edward	332.28	100.00	----------	432.28
163729	Waterman, James M	149.20	----------	----------	149.20
163853	Watson, John W	14.30	100.00	----------	114.30
171151	Wiese, August	95.68	----------	----------	95.68
156135	Wilson, Jackson	9.76	----------	----------	9.76
156136	------do	1.08	----------	----------	1.08
167788	Waldron, Chauncey W	198.00	----------	----------	198.00
164774	Wolf, Levi	41.60	----------	----------	41.60
103570	Waltz, Edward D	----------	100.00	----------	100.00
164752	Williams, William A	110.46	----------	----------	110.46
164262	Ward, Henry	31.10	100.00	----------	131.10
155749	Wilson, Patrick H	27.26	50.00	----------	77.26
155721	Walker, George M	5.63	100.00	----------	105.63
153905	White, William F	14.55	----------	----------	14.55
155833	Williams, James M	17.76	----------	----------	17.76
156283	Wauless, John F	201.93	----------	----------	201.93
163842	Wright, Seaborn	----------	36.49	50.00	86.49
163744	Wilson, James	----------	33.33	----------	33.33
163722	Weaver, Chas. H	67.52	33.33	----------	100.85
163826	Wiebe, Lewis E	104.72	----------	----------	104.72
164699	Weber, Charles	166.06	----------	----------	166.06
164661	Wiley, William G	8.00	----------	----------	8.00
163650	Wilson, William	----------	160.00	----------	160.00
163830	Wallace, Henry H	58.98	----------	----------	58.98
152974	Waring, William	70.37	----------	----------	70.37
156285	Woolwine, Jacob P	3.50	----------	100.00	103.50
163782	Warner, William H	90.46	----------	----------	90.46
155969	Wishow, David	19.98	66.66	----------	86.64

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
163885	Washington, Thomas		$290.00		$290.00
163886	——do		10.00		10.00
156762	Wooten, Isaam	$80.58	300.00		380.58
156763	——do	10.00			10.00
163883	White, Mitchell	79.64	200.00		279.64
163884	——do	10.00			10.00
156857	Wallace, John W	82.56			82.56
163652	Wright, Joseph W. B	37.02			37.02
148394	Williams, William H	1,139.38			1,139.38
151548	Wallace, John	48.54			48.54
155269	Worley, Burel	6.06	75.00		81.06
156741	Willis, William F	66.77			66.77
163787	Warren, Charles	188.52			188.52
164771	Way, Samuel	7.21	37.50		44.71
165071	Washington, Orion		100.00		100.00
165453	Winder, Charles	170.53			170.53
160419	West, Elisha G	8.09			8.09
163570	Weatherspoon, Samuel	28.44			28.44
165118	Wilson, William A	12.40			12.40
165117	Weidensall, Jacob	97.44			97.44
165455	Wade, Francis	130.29			130.29
164765	Whisler, Isaac	145.19			145.19
165863	Wright, William N	20.82			20.82
164600	Whitfield, Edward		250.00		250.00
165126	West, Robert M	15.70			15.70
165189	White, Henry K	129.87			129.87
165024	Widdows, William H		160.00		160.00
154348	Weddington, William	56.32			56.32
165903	Whelock, L. L	33.72			33.72
166494	Wing, Richard L. H			$50.00	50.00
164628	White, John T	163.86			163.86
166423	Williamson, John J	6.64			6.64
165857	Wheeler, John		100.00		100.00
165086	Woodworth, Henry P	25.83	300.00		325.83
163648	White, Austin J	141.62			141.62
165035	Wall, Franklin G	61.96	15.00		76.96
164767	White, John B	163.99	33.33		197.32
163717	Wakefield, Thomas	116.26			116.26
165982	Weeks, Joel		100.00		100.00
150211	Williams, F. M	81.32	60.94		142.26
155842	Williams, Morgan T	68.46			68.46
165836	Wilkins, Thomas J	36.61			36.61
164716	Watkins, Maurice	166.45			166.45
166217	Whitmore, Elijah	118.27			118.27
167331	Watson, George		25.00		25.00
167023	Walker, William			100.00	100.00
166480	Williams, Charles		65.00	50.00	115.00
166481	——do		10.00		10.00
166452	Williams, Aaron	7.20	100.00	100.00	207.20
166453	——do	10.00			10.00
166465	Washington, George	176.76			176.76
166466	——do	10.00			10.00
166437	Weaver, Richard H	22.10			22.10
166659	Wright, John W	55.90			55.90
165207	Williams, Jesse		100.00		100.00
153805	Wilson, Henry W	51.87			51.87
166127	Washington, Christopher	6.65	25.00		31.65
166128	——do	5.00			5.00
165167	Williams, John, No. 2	1.40	100.00		101.40
165168	——do	10.00			10.00
166094	Wagoner, Geo. W	18.26	100.00		118.26
166095	——do	10.00			10.00
166096	Word (or Ward), Henry	63.23	100.00	100.00	263.23
166097	——do	10.00			10.00
163908	Williams, Dennis	10.00			10.00
163907	——do	17.04	100.00	100.00	217.04
166233	Wilson, James P	21.44	50.00		71.44
167574	Wills, John E		33.34		33.34
156298	Wood, James W	13.38			13.38
167304	Watt, William L	85.72			85.72
165986	Wood, Andrew L	11.19	100.00		111.19

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

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	WAR DEPARTMENT—Continued.				
166449	Weed, David A	$58.87			$58.87
156704	Whitney, Mason G	37.43	$100.00		137.43
173156	Weyman, Joseph	42.13			42.13
172929	Wonsey, John	59.33	240.00		299.33
156770	Wilson, Ezra A	1.90			1.90
166698	Wells, Henry A	220.83			220.83
167621	Watson, James L	50.84			50.84
166680	Williams, George M	149.06			149.06
167617	Warfield, Andrew W	41.24	22.22		63.46
164645	Williams, Joseph B	124.18	135.00		259.18
167180	Whiting, Augustus	88.19	100.00		188.19
168057	Wilson, Hiram		99.29		99.29
168058	do	9.29	.71		10.00
167837	Wesley, John. (*See* J. Wesley Louis.)				
163690	Wideawake, Herbert J. (alias Herbert J. Laney)	5.64	60.00		65.64
166247	Weitzel, Philip	30.07			30.07
162612	Wiesendanger, Ulrich	2.31			2.31
167312	Woodruff, John F	331.10			331.10
167615	Williams, Le Roy	90.07			90.07
166152	Woodward, George D	105.04			105.04
166245	Warrell, William C	115.66			115.66
166156	Wilson, Ephraim A	135.30			135.30
166713	Wise, Henry L	59.84			59.84
167377	Wilson, Thomas W		185.00		185.00
167881	Wood, William			$95.78	95.78
167847	Washington, Peter	17.46			17.46
167848	do	1.94			1.94
168553	Wilson, Samuel	38.22	100.00		138.22
168554	do	10.00			10.00
167232	Whitney, Benjamin F	14.55			14.55
167001	Weaver, David J	3.95	100.00		103.95
168502	White, William H		100.00		100.00
174843	Wheeler, Park	183.78			183.78
174842	Wait, Martin	162.00	75.00		237.00
167192	Warden, Peter	85.00			85.00
168557	White, Ezekiel	34.81	50.00	50.00	134.81
167595	Wheeler, Squire	29.30	100.00	50.00	179.30
169138	Welty, Henry G	42.06	125.00		167.06
169349	Wallace, Henry		90.00		90.00
169350	do		10.00		10.00
156946	Watts, James M	24.68			24.68
167205	Wagenseller, William	105.14			105.14
165417	Watts, Felix R	33.34			33.34
166169	Wilson, Samuel	139.37			139.37
169213	Waters, Richard	37.43	75.00		112.43
169218	Willson, William	135.29			135.29
169132	Weber, Daniel	33.76			33.76
169580	Witherell, Justus	17.35			17.35
167351	West, William F	68.19			68.19
168789	Wall, Garrett	190.09			190.09
156421	Wheaton, Cornelius W	21.25			21.25
167210	Wemple, Mindret	104.42			104.42
167244	Wait, Walter S	231.25			231.25
167229	Watson, Henry S	110.58			110.58
167007	Whitwell, James G	58.23			58.23
169853	Washington, John	4.80			4.80
170216	Walden, Jules A. (*See* Leander Cushing.)				
169859	Whitley, John	245.14			245.14
170114	Walls, Wiley	13.03	10.000	10.000	213.03
169145	Westhoven, Armon D		13.500		135.00
168114	Wright, William B		100.00		100.00
168786	Washburn, Joseph L	163.36			163.36
168095	Walters, George S	96.73			96.73
170099	Wilcox, Dennis	13.36			13.36
170100	do	1.48			1.48
170136	Washington, William	8.05			8.05
170137	do	.89			.89
168398	Walker, Sylvester	34.12	100.00	100.00	234.12
168399	do	10.00			10.00
170140	Wallace, Toby	8.94			8.94

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	WAR DEPARTMENT—Continued.				
167209	Willis, James W	$142.74			$142.74
168361	Wellcome, Henry C	194.31			194.31
170124	Whittey, Richard		$90.00		90.00
170125	....do		10.00		10.00
167392	Williams, Oliver	35.34	75.00		110.34
169625	Walker, Benjamin F	12.15	20.00		32.15
169228	Williams, Hugh W	71.02			71.02
167793	Waschow, Ferdinand	1,616.00			1,616.00
170378	Wulffien, Leopold von	249.07			249.07
169595	Watts, Richard A	40.59			40.59
170120	Whitaker. (*See* Henry Hemphill.)				
175138	Welch, Daniel	12.08	200.00		212.08
165046	Weller, Henry	75.29			75.29
170220	Whiteside, James E	18.75			18.75
169155	Wheeler, John W	18.78			18.78
169231	Whittaker, David	26.88			26.88
170420	Wallace, Wm. J	165.66			165.65
168117	Wertsbaugh, Samuel		100.00		100.00
170422	Waters, James	15.16	75.00		90.16
167386	Ward, Charles O		100.00	$50.00	150.00
167409	Wyckoff, Norval H	21.31			21.31
167395	Wyatt, Benjamin F	36.63			36.63
167407	White, David	337.90			337.90
148951	Witt, William			100.00	100.00
170585	Washington, David	13.46			13.46
170586	....do	1.50			1.50
162852	Walker, Dewitt		100.00		100.00
170053	Webb, John		160.00		160.00
167274	Williams, Edward	10.08			10.08
167275	....do	1.12			1.12
169903	Woods, Isaac N	286.22			286.22
166499	Watley, James	15.69			15.69
167203	Wheeler, George E	44.80			44.80
147758	Wood, John W	188.76			188.76
170596	Wilson, Allen		190.00		190.00
170597	....do		10.00		10.00
170064	Whitaker, Owen	326.01			326.01
176380	Walcott, Aaron F		100.00		100.00
171091	Walker, William	13.05			13.05
171092	....do	1.45			1.45
169592	Whitney, Mindrus H	190.91			190.91
170615	Wilson, John F	1.40	100.00		101.40
169917	Wolford, Herman	15.25			15.25
170239	Whiteside, Benjamin	245.79			245.79
162690	Walkup, Alpheus	5.90			5.90
168530	White, Jas. M		325.00		325.00
162466	Wood, Leander		80.00		80.00
163350	Wolcott, Thomas	6.76			6.76
170400	Williams, Joseph M	103.60			103.60
168807	Wetzel, Samuel E	122.62			122.62
170057	Wells, Levi A	30.07			30.07
162619	Wright, Josiah	5.05			5.05
170868	Watt, William	176.98			176.98
171261	Warner, John		196.05		196.05
171262	....do		10.00		10.00
171120	Williams, Solomon	9.06			9.06
171121	....do	1.01			1.01
171181	Wilson, John W	13.43		100.00	113.43
171178	White, Samuel		60.00		60.00
171255	Woodward, Alexander	4.92	300.00		304.92
171256	....do	10.00			10.00
171290	Wright, Henry		90.00		90.00
171931	....do		10.00		10.00
170591	Willis, Stephen	57.01	100.00		157.01
170592	....do	10.00			10.00
175007	Wetmore, Willard S	133.71			133.71
174118	Wiggins, Jasper	100.19	95.00		195.19
174844	Whitney, Lawrence M	93.22			93.22
171891	Walker, James	25.47	25.00		50.47
171896	Williston, John H	42.46			42.46
171192	Wells, John H	29.73			29.73

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	WAR DEPARTMENT—Continued.				
170648	Wright, William	$8.93	$58.00		$66.93
164598	Wright, George	96.49			96.49
169399	Watson, James F	81.81			81.81
172291	Wilde, Joseph B	27.62	100.00		127.62
170860	Walker, Joseph A	28.35		$50.00	78.35
144673	Warner, George		9.40	50.00	59.40
170658	Warmoth, George M	40.98			40.98
169928	Wolz, John	8.73			8.73
164800	Wilson, Thomas	109.80			109.80
172352	Willis, Lewis	65.60	100.00		165.60
172353	——do	10.00			10.00
171549	Wright, Joseph F	60.62			60.62
167878	Welch, John. (*See* David Mather.)				
172171	Winship, William H	12.68	75.00		87.68
170612	Weaver, Jacob F	16.00			16.00
171068	Wallace, William M	77.12	25.00		102.12
169918	Wheeler, Andrew W	86.63			86.63
171937	Wiley, John	71.28	160.00		231.28
171938	——do	10.00			10.00
30422	Wheeler, Henry C	31.61			31.61
165166	Wilson, George		20.84		20.84
172368	Wright, Lewis	1.08			1.08
172367	——do	9.67			9.67
172366	Whitney, David		10.00		10.00
172365	——do		90.00		90.00
170885	Wilshire, Joseph W	211.74			211.74
171206	Wilder, Jefferson J	8.92			8.92
172364	White, Samuel	43.09	100.00	100.00	243.09
171983	Whitehead, Onesimus W	2.47	100.00		102.47
164777	Ward, William A	12.29			12.29
171141	Walford, Fountain I	45.09			45.09
171985	Weatherwax, Thomas J	114.30			114.30
172852	Wells, David W	15.00	100.00		115.00
171490	Weste, William	730.00	85.00		815.00
172234	Wilson, McDonald	6.53	75.00	100.00	181.53
171156	Weaver, Edmond R	46.62			46.62
172157	Wheeler, N. W	78.73			78.73
165199	Warner, Martello	15.66		50.00	65.66
175120	Wetmore, Almon	17.00			17.00
169398	Walker, John C	140.62			140.62
172362	Williamson, Elijah	.96	100.00	50.00	150.96
172363	——do	10.00			10.00
172031	Weber, William B	78.95			78.95
171477	Watts, Arthur H	54.02			54.02
172933	Williams, Job	4.88			4.88
172934	——do	.54			.54
172939	Wilson, Richard	26.51	100.00		126.51
172940	——do	10.00			10.00
173382	West, Elias	52.78	100.00	100.00	252.78
173383	——do	10.00			10.00
172301	Williams, H. C. (*See* C. Cathcart.)				
149752	Watson, Samuel J		100.00		100.00
124443	Winebrenner, Jacob	52.00			52.00
164094	Walker, William R	10.93			10.93
173396	Williams, Emanuel	91.72	100.00		191.72
173397	——do	10.00			10.00
172023	Weand, H. K	164.73			164 73
171489	West, John W	16.50			16.50
170077	Woodsworth, Frank	77.71			77.71
172838	Williams, Robert	24.03	100.00		124.03
172839	——do	10.00			10.00
173390	Washington, George		278.50		278.50
173391	——do		10.00		10.00
173393	Watson, Calvin	7.79	2.21		10.00
173392	——do		297.79		297.79
172162	Ward, Alexander	30.68			30.68
172149	White, Thomas	43.30			43.30
172842	Williams, Carl		90.00		90.00
172843	——do		10.00		10.00
169885	Wilber, Beriah	16.12			16.12
172063	Weatherford, Perry R		118.85		118.85

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
171901	Warriner, Silo P	$315.96			$315.96
173459	Werick, Henry	182.33			182.33
172311	Wellman, Curtis K	152.86			152.86
172734	Woodcock, Jacob		$100.00		100.00
171132	White, Ewing		86.51	$50.00	136.51
171200	Wright, William B	419.60			419.60
172242	Watkins, John T	73.39			73.39
173421	Wade, Warren W	21.41			21.41
172316	Winegar, William	99.04			99.04
172312	Woodward, Horace P	251.04			251.04
172854	Whitney, Edwin		97.25		97.25
172202	Wren, William	57.71			57.71
172911	Wood, Delos R	218.20			218.20
173469	Weeks, Mandred F	24.14			24.14
171084	Weaver, Lorenzo L	6.23	200.00		206.33
172748	Wallhauser, George	34.12			34.12
172862	Wilson, John T	497.84			497.84
173137	Weber, Erhard	140.16			140.16
172596	Warner, John B	74.27			74.27
172164	Wells, Hiram A	97.77	75.00		172.77
171996	Wicoff, Joseph	225.44			225.44
173632	Williams, William	107.50			107.50
173633	——do	10.00			10.00
170889	Wilson, William C		100.00		100.00
173406	Ware, John		90.00		90.00
173407	——do		10.00		10.00
173149	Wickliffe, John D	50.00			50.00
172737	Washburn, Andrew	200.40			200.40
172308	Webster, Samuel	16.62			16.62
174213	Wright, David	4.88			4.88
174214	——do	.54			.54
173825	Watson, Horace		99.28		99.28
173826	——do	9.28	.72		10.00
174092	Wooley, Elisha P	31.21			31.21
104918	Wiar, Henry	256.91			256.91
173507	Wishard, Robert T	146.60	50.00		196.60
172778	Wheatley, James P	51.85			51.85
173512	Ward, Samuel L	111.04			111.04
174236	Wylie (or Wiley), Philip	12.40			12.40
174237	——do	1.38			1.38
173614	Willson, Andy	9.06			9.06
173615	——do	1.01			1.01
172960	Williams, Monroe	9.06			9.06
172961	——do	1.01			1.01
165736	Watson, David	15.52			15.92
171222	——do	5.00			5.00
165704	Wiley, Joseph	2.77			2.77
171237	——do	.31			.31
171078	Ward, Eugene	296.93			296.93
174225	Washington, Russell	8.41			8.41
174226	——do	.93			.93
172280	Williams, Warren	280.66			280.66
173713	Wertz, George		47.00		47.00
172863	Wortman, William B		212.07		212.07
172010	Werner, Henry	135.05			135.05
173744	Walters, George	7.00			7.00
172918	Williams, Richard F	502.13			502.13
171924	Whitehurst, Ransford R	17.67			17.67
164653	Wyandt, David	25.66	100.00	100.00	225.66
163302	Wilson, Isaac L. (alias John L.)	6.77			6.77
164849	Way, James	2.82			2.82
164946	Wilday, John	28.16			28.16
172288	Wescott, Lemuel K	93.62			93.62
173727	West, Ansel G		100.00		100.00
174626	Washington, General	27.89	100.00		127.89
173791	Wentzel, Jacob E	60.78			60.78
174815	Williams, James		40.00		40.00
173167	Wilder, Abram H	83.21			83.21
172790	Watson, Alexander	53.12			53.12
175096	Webbert, Reuben R	33.00	33.33		66.33
174537	Willard, Samuel	78.11			78.11

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid.			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
173485	Williams, M. Alexander	$47.80	$75.00		$122.80
174940	Winebrenner, John	50.95		$100.00	150.95
173724	White, Hiram H	40.13			40.13
165743	Weaver, Alexander	2.79			2.79
171240	——do	.31			.31
174023	Walker, Albert S	92.95	35.00		127.95
154220	Wentworth, Charles E	169.96			169.96
172876	Willis, Samuel C	41.74			41.74
173440	Williams, Thomas	324.80			324.80
174244	Washington, Harry	13.66			13.66
172083	Warner, John T	281.90			281.90
172872	Whitman, George A	581.22			581.22
172082	Wolgemott, George W	119.26			119.26
174144	Warner, Henry D	101.14			101.14
174398	Wagoner (or Wagner), John A	7.04	15.00		22.04
175017	Wright, William A	73.22			73.22
172930	Ward, Luman	3.04	100.00		103.04
164163½	Wallace, Anthony	5.78			5.78
173490	Wolcott, Henry G	158.87			158.87
173199	Weeks, George R		100.00		100.00
173189	Williams, Robert	86.30			86.30
174539	Wells, Philius L	180.32			180.32
173154	Wiese, August		100.00		100.00
175134	Winter, Andreas	48.96			48.96
173449	Whitney, Alden	66.80			66.80
162134	Walton (or Warren), Joshua	3.18			3.18
171227	——do	.35			.35
174104	Warner, Henry C	96.34			96.34
173428	White, Wm. M	9.03	100.00		109.03
171994	Wright, Robert (alias Robert Thompson)	.95	200.00		200.95
173525	Wycoff, William	92.63			92.63
175057	Wiley, Lorenzo	40.30	100.00		140.30
169462	Walsh, William B	3.80			3.80
172952	Wilson, Lewis		90.00		90.00
172953	——do		10.00		10.00
173655	Williamson, Stephen A	.55	25.00		25.55
169557	Wertz, Robert	22.00			22.00
153665	Woodruff, Henry	121.60			121.60
169357	Washington, Emanuel	110.41			110.41
169358	——do	10.00			10.00
163668	Wilson, Edward S	143.60			143.60
167143	Williams, Andrew J	9.46			9.46
168663	Woodruff, William F	4.65			4.65
173527	Wing, James H	198.60			198.60
171163	Winchell, Lewis C	14.13			14.13
167669	Wright, George W	3.53			3.53
162130	Works, James	3.18			3.18
171229	——do	.35			.35
162266	White, Thomas M	2.83			2.83
163646	White, John E	22.99			22.99
165400	Ware, James H	6.60			6.60
171244	——do	.73			.73
165708	Williamson, John. (*See* Jno. Houston.)				
167961	Walters, John	45.65			45.65
168470	Wolf, William	7.31			7.31
168657	Wicks, Benjamin D	2.81			2.81
169325	Walters, James W	3.37			3.37
171584	Wiebel, Ernst		100.00		100.00
172949	White, Wilson	175.98	100.00		275.98
173667	West, Sanford E	5.75			5.75
175065	Waits, Charles	2.82	200.00		202.82
145347	Yeoman, Samuel N	31.55			31.55
147704	Yancey, Richard		96.00		96.00
147705	——do	6.00	4.00		10.00
148316	Yaple, Jacob	105.97			105.97
149036	Young, James H		200.00		200.00
150159	Young, Joseph	75.64			75.64
148571	Yost, Jacob W	222.91			222.91
150822	Yarnell, Milton G	28.44			28.44
153145	Yates, George W	121.15			121.15
153183	Yarbrough (or Yarbor), Sandy	71.20	100.00	100.00	271.20

Claims allowed by the Second Auditor and Second Comptroller, etc.—Continued.

No. of certificate.	Name of claimant.	Appropriations from which paid			Total.
		Pay of two and three years volunteers (certified claims), 1891.	Bounty to volunteers and their widows and legal heirs (certified claims), 1891.	Bounty under act of July 28, 1866 (certified claims), 1891.	
	WAR DEPARTMENT—Continued.				
153184	Yarbrough (or Yarbor), Sandy	$10.00			$10.00
154046	Young, John Q. A	48.79			48.79
153908	Yarnell, William E	21.15	$100.00		121.15
156787	Young, Rufus		190.00		190.00
156788	——do		10.00		10.00
164274	Yarnell, George		100.00	$100.00	200.00
164671	Young, Archie	127.36			127.36
165072	Young, Newlen D			50.00	50.00
167213	Young, Charles G	93.30		50.00	143.30
154734	Youmans, Samuel J		196.37		196.37
166528	Yates, Elsey	8.37			8.37
169384	Young, Parsalla H	55.74			55.74
168795	Young, William	21.67			21.67
99174	Young, Robert M	70.63			70.63
171128	Yokum, John	9.06			9.06
171129	——do	1.01			1.01
171148	Young, James	10.44			10.44
172186	Young, Lysander B	75.43			75.43
172115	Yealy, Jacob		200.00		200.00
169177	Young, Andrew H	30.86			30.86
170684	Youngberg, John E	419.46			419.46
172287	Yates, John D	41.69			41.69
174544	Young, Lyman W	46.67			46.67
174536	Yates, Charles H	40.48			40.48
174629	Young, Thomas	.05	100.00		100.05
174630	——do	10.00			10.00
172085	Young, Augustus H	185.52			185.52
174081	Yaple, Fletcher D	3.30	67.26	100.00	170.56
177754	Young, James	72.72	75.00		147.72
157449	Zinn, James W	68.80			68.80
146104	Zeek, Farlow S	12.61			12.61
164593	Ziegler, William Q	43.33			43.33
48432	Zuber, John B		100.00		100.00
153879	Zengel, Frederick	1,109.43			1,109.43
153391	Zimmern (or Guelich), Therese	15.80			15.80
163765	Zinn, Edward P		100.00		100.00
165012	Zehning, John W	38.15			38.15
173742	Zittel, Conrad		200.00		200.00
165339	Zschocke, Ernst		124.14		124.14
	Total	775,841.67	330,243.87	50,786.40	1,156,871.94

RECAPITULATION.

Pay of two and three year volunteers	$775,851.67
Bounty to volunteers and their widows and legal heirs	330,243.87
Bounty, act July 28, 1866	50,786.40
Total	1,156,881.94

List of claims for commutation of rations to prisoners of war in rebel States and to soldiers on furlough allowed by the Third Auditor and Second Comptroller, and paid from indefinite appropriation made by act of March 3, 1891 (26 Stat., p. 985), from July 1, 1891. to June 30, 1892.

No. of sett.	Name of claimant.	Amount.	No. of sett.	Name of claimant.	Amount.
	WAR DEPARTMENT.			WAR DEPARTMENT—Continued.	
4021	Ashby, Joshua F., deceased; Rebecca Ashby, widow	$38.00	4201	Akeley, Sidney L., deceased; Jonathan W., Joseph C., Delos M., Elias B., Stephen V., and Abigail Akeley, brothers and sisters	$22.25
4042	Ackerman, Henry	82.50			
4107	Anderson, Alfred	55.00			
4128	Abell, Cornelius W	.50			

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.	
4214	Alspach, William G	$41.00
4286	Austin, Nathan	57.50
4368	Allen, John R	43.50
4416	Anderson, James D	12.50
4412	Anderson, Josephus	6.75
4278	Allison, Alonzo	71.00
4648	Abinger (or Ebinger), Chas	7.50
4766	Altman, Alvis	7.75
4805	Allison, George W	4.00
4967	Armbruster, Franz, deceased; Leopoldina Armbruster, widow	3.25
5131	Alley, Andrew	6.75
5172	Ahr, Jacob	6.75
5226	Arnold, Omer A	6.75
5236	Albright, John	6.75
5250	Armentrout, John	6.75
5251	Armantrout, Daniel	6.75
5320	Acoam, Henry J	6.75
5380	Allen, Benjamin R	12.50
5485	Ashley, John	28.75
5509	Alexander, Joseph M	6.75
5550	Armstrong, Sidney	7.25
5645	Alley, James M., deceased; Nancy J. Shafer, late widow	6.75
5646	Anderson, Thomas	6.75
5674	Ault, David	29.75
5731	Andrews, Robert N	6.75
5786	Anderson, John C	7.50
5863	Aldridge, William F	6.75
5864	Arnold, William S	6.75
5900	Anderson, Henry	54.25
5915	Apple, Godfrey	6.25
5934	Axtell, Stephen	55.75
5935	Arthur, John W	6.75
5997	Akers, John A	28.75
6087	Arnold, John	7.50
6140	Ayers, Edward	3.25
6209	Acton, Andrew T	6.75
6341	Acton, Wilburn	6.75
6351	Alexander, William	7.50
6388	Auten, Thomas F	14.00
6459	Allen, Charles	34.75
6503	Ault, Isaac	3.25
6533	Allison, George W	6.75
6594	Allen, John Q	14.50
6651	Alley, John S	6.75
3931	Baker, Elijah, deceased; Lethe Baker and Mary McKinney, only sisters	41.75
3939	Burns, Daniel, deceased; David J. Burns, Patrick Burns, Mary Lynch, brothers and sister	4.50
3940	Bolinger, William H	23.50
3941	Ball, Loren	3.25
3942	Bell, Samuel F	19.50
3943	Binkley (or Bonckley), Charles N	46.25
3948	Bryan, John R	7.50
3970	Barnhill, Jonathan	9.75
3995	Beebe, Henry D	14.25
3996	Burnham, Joseph B	7.50
4024	Beers, Dewitt C	70.25
4043	Beeler, James A	74.75
4055	Butts, Jesse	69.00
4059	Bottles, Perry	63.00
4060	Beller, Branson H	15.75
4062	Burroughs, James, deceased; Clark A. and Albert A. Burroughs, and Elizabeth Whitacre, children	31.75
4067	Beals, Isaac B	51.00
4091	Beadle, Joel S., deceased; Jane E. Beadle, widow	11.75
4106	Barnea, Monroe (or Barney)	31.50
4108	Bumgardner, Anthony W	23.25
4126	Beasley, Jackson, deceased; Isom Beasley and Sarah Boardman, children	$39.00
4137	Bixler, William H	7.25
4145	Babcock, Albert N	25.50
4196	Baxter, John S	5.50
4208	Browning, Jeffrey H	93.00
4219	Brown, David O	6.75
4239	Bulen, Erwin D	8.75
4244	Brown, William T	8.75
4253	Bayer, Joseph	13.25
4293	Blodgett, George B	1.00
4398	Brubaker, John M	3.25
4371	Blakely, Anderson, deceased	50.00
4372	Bucheer, Frederick	6.75
4387	Buford, Albert, deceased	51.00
4451	Baxter, Geo. A	10.50
4463	Bailey, William	68.25
4482	Bracewell, Lewis	7.50
4478	Brown, John	10.00
4502	Bliss, Rufus M	20.00
4503	Brossart, Mathias	8.75
4504	Brown, Geo. A	53.00
4279	Beverly, John, deceased; Mary A. Beverly, widow	22.75
4544	Billips, Essex, deceased; Mrs. Fanny Billips, widow	46.50
4571	Breck, Lloyd	11.00
4261	Buckman, A. Harding	24.50
4649	Baker, David M	6.75
4650	Brummett, Joseph	7.75
4651	Burkhart, Jefferson	5.00
4711	Bankson, William L	8.75
4715	Barnes, William A	10.00
4716	Bossert, Jacob	19.75
4768	Brown, William	10.00
4802	Broucket, Florant, deceased; Joseph Broucket, father	42.50
4824	Bellus, Cyrus	5.25
4827	Bonebrake, Frederick W	7.00
4853	Barrett, Enoch G	7.50
5065	Barkley, John	6.75
5066	Barnett, Henry	6.75
5067	Barnett, John	6.75
5068	Brown, George H	6.75
5088	Benbow, Isaac E	6.75
5097	Bowsman, Benjamin F	6.75
5140	Barry, Patrick	7.50
5150	Brushwiller, Robert A., deceased; Mary A. Brushwiller, widow	6.75
5151	Bates, Jonathan	6.75
5152	Baughman, William	6.75
5169	Buck, Edward M	13.75
5173	Baxter, Reuben	6.75
5174	Blackburn, Robert	6.75
5175	Blossom, Lyman R	6.75
5176	Boyd, Robert	6.75
5177	Burdg, William M	6.75
5252	Baldwin, Lancaster D	6.75
5262	Bohall, James	6.75
5263	Bosley, James	6.75
5285	Bates, Aaron	6.75
5286	Brandyberry, Abraham	6.75
5287	Brandyberry, John	6.75
5288	Burkhead, Samuel O	6.75
5289	Butcher, Jacob	6.75
5343	Brenaman, Albert	5.25
5381	Blashfield, George	7.50
5383	Brand, John	3.00
5384	Brown, Owen	91.75
5400	Benton, Asbury W	6.75
5401	Bramblett, Thomas E	6.75
5402	Burton, William R	6.75
5403	Butler, James M	6.75
5421	Barnes, Frederick E	6.75
5453	Butler, Marvin B	37.25
5459	Bond, Allen D	6.75
5486	Budron, Alexander	7.25

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.	
5510	Brown, Elisha J	$6.75
5511	Brown, George W	38.25
5528	Ball, James H	7.25
5542	Bunyard, William W., deceased, Judy Bunyard, widow	6.75
5543	Burlingame, Stephen	6.75
5555	Barber, Thomas J	15.50
5602	Brown, Frederic	14.25
5618	Baumann, John	6.75
5619	Black, Benjamin F	6.75
5626	Becker, Phillip	6.75
5627	Brown, John H	6.75
5647	Barnett, James H	6.75
5661	Bishop, Chas	50.75
5662	Boyd, Samuel N., deceased, Eleanor Boyd, widow	7.50
5663	Burnet, William	5.50
5677	Beals, Bishop A	146.50
5678	Bierce, Philo	18.00
5682	Buckley, William, deceased, Bridget Buckley, widow	27.00
5893	Barnett, John	3.75
5699	Baker, David	6.00
5713	Burkhead, Nathan H	6.75
5732	Brees, Watson C	56.75
5737	Brindle, Samuel, deceased, Jacob and Jonathan Brindle and Catharine Wilson, brothers and sister	37.00
5758	Burris, Charles W	6.75
5780	Bennett, John W	11.25
5790	Bagley, John, jr	9.50
5792	Blakeslee, Edward N	6.75
5793	Bruce, George W	3.25
5805	Bear, William	6.75
5827	Barnes, William W., deceased, James Barnes, Rose Ann Atherton, Mary Jane Carter, and Lydia Ann Bailey, brother and sisters	39.50
5832	Brest, John	19.75
5833	Bryner, George W	7.00
5834	Beavers, William H	6.75
5865	Brunger, Stephen	6.25
5871	Bixby, Franklin	3.25
5916	Battenberg, Andrew J	6.25
5936	Bowman, James	6.75
5950	Boyd, James R	6.75
5951	Bridwell, Carter	6.75
5963	Browning, Wesley	6.75
5964	Burritt, Cassius M	5.00
5979	Ballinger, John	13.00
6052	Burton, Joseph A	20.00
6069	Bailey, George H	10.75
6088	Bailey, John S	6.25
6089	Baker, Samuel R	6.25
6090	Barmes, Charles L	6.25
6126	Burt, Benjamin D	12.00
6141	Barnett, David C	32.50
6147	Bedel, Isaiah	6.75
6184	Bower, James W	6.75
6186	Boucher, George O	3.25
6242	Bobo, Clark	47.25
6255	Bowers, James K	3.25
6262	Baughman, Wilson S	3.25
6263	Broadstone, John	3.25
6264	Bunner, Eugene	6.25
6276	Brock, William	5.00
6298	Burrell, Reuben	6.75
6301	Bridgman, John	3.25
6314	Borton, Job	3.25
6330	Barnett, William	6.75
6339	Bowen, Charles B	3.25
6342	Bell, John J., deceased; Caroline M. Bell, widow	29.50
6354	Beasley, Jonathan R., deceased; Elizabeth J. Stephen, sister	21.50
	WAR DEPARTMENT—Continued.	
6372	Bales, Thomas C	$3.25
6382	Brewster, John	6.50
6389	Black, Charles W., deceased; Mary A. Black, widow	6.75
6393	Barrett, James W. A	7.25
6401	Brown, Patrick J	20 75
6426	Blalock, Andrew J	6.75
6435	Boyce, Thomas	12.25
6436	Briton, Aaron	6.75
6481	Burlingame, Stephen	8.50
6498	Baber, Levi	6.75
6499	Bunyard, Henry W., deceased: Parmela Stegner, late widow	6.75
6534	Black, James	6.75
6537	Bane, Henry	4.50
6556	Basford, John H	7.75
6577	Bickel, Henry	31.00
6578	Bishop, Albert M	21.50
6629	Brown, Charles, deceased; Enos L. Brown, father	59.00
6637	Burkhead, Green B., deceased Florence E. Mathenson, only child	6.75
6679	Bridaham, H. W., deceased; Wm. H. Bridaham, Belinda Dunkle, and Aura Little, children	26.25
3971	Campbell, Dennis, deceased, Rebecca W. Campbell, widow	19.50
3976	Cook, Edward B	4.00
3997	Culver, Asahel B	14.50
4025	Clements, Curtis	14.50
4044	Cook, William P	6.75
4063	Crummey, William	7.50
4073	Castle, Julius	28.50
4131	Churchill, Enoch	7.50
4136	Corner (or Comer), William	5.75
4138	Coulter, Jesse	4.50
4185	Cunningham, Seneca L	5.00
4246	Caldwell, Harvey	37.75
4247	Chamberlain, Oscar	7.50
4289	Clelan, Alfred	6.50
4294	Comstock, James	2.50
4352	Cail, James W	6.75
4421	Clinton, Thos., deceased	47.75
4396	Cole, Andrew M	38.00
4357	Calkins, Walter	14.50
4369	Covert, John	7.50
4400	Cole, Henry O., deceased	83.25
4428	Cowser (or Cowsert), Abraham	62.50
4527	Cooper, Joseph	7.25
4528	Collerd, David B	5.00
4539	Carpenter, Jasper	29.50
4587	Cramer, Jacob, deceased, Susan E. Hale, only child	51.75
4602	Cram, James H	7.50
4616	Coates, Ezra	5.25
4669	Costello, John	7.50
4678	Clemons, John W., deceased, Henry Clemons, father	3.50
4679	Chatterton, Ezra	7.50
4698	Cadman, Charles	12.00
4769	Cooper, James	4.00
4786	Cathers, Orin C	39.75
4787	Chalfant, George E	7.50
4825	Cunningham, John	3.75
4828	Coffee, John J. (alias George Barry)	3.00
4889	Campbell, John P	5.00
4936	Criss, Isaac R	70.25
5069	Cassell (or Castle), Samuel A	6.75
5070	Collins, Henry C	6.75
5071	Cronister, Henry	6.75
5098	Cory, Marcus C	6.75
5099	Coppock, Calvin	6.75

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.	No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.			WAR DEPARTMENT—Continued.	
5178	Christen, Albright T	$6.75	6185	Cranney, Edwin	$17.75
5179	Coverdale, Elias G	6.75	6210	Cross, Solomon Z	6.75
5180	Crist, George	6.75	6211	Curry, James F	6.75
5181	Cronister, Samuel	6.75	6217	Churchville (or Churchwell), Peter	69.00
5210	Corson, Jonah	6.75	6243	Cox, Harvey J	3.25
5237	Childers, Jesse	6.75	6256	Curtis, Charles C	3.25
5253	Cloud, Goldsmith	6.75	6265	Carr, Thomas J	12.25
5300	Coffey, Andrew N	6.75	6308	Colchin, Peter	6.25
5404	Crowell, Harrison	6.75	6336	Cushman, Charles H	14.00
5411	Cramer, Elias	8.75	6343	Coulthard, John	18.75
5450	Christy, David, deceased; Caroline E. Christy, widow	78.25	6366	Curry, Pleasant	6.75
5454	Craven, Gilliam Lawrence	6.75	6373	Clayton, James C	3.25
5460	Charles, William R	6.75	6390	Corum (or Coram), John S	16.50
5461	Cook, Milton	6.75	6402	Chapman, Uriah	6.75
5504	Carter, George W	27.75	6405	Chambers, Charles	3.75
5512	Conrad (formerly Castles), William G	9.00	6409	Cox, Charles P	3.25
5487	Cambron, Wesley	6.75	6419	Chase, Edwin	2.50
5523	Clapp, Rufus	56.50	6427	Crosson, John M	6.25
5544	Cook, Madison	67.25	6441	Cottingham, James W	30.00
5551	Campbell, Alexander	38.00	6473	Compton, David	6.75
5552	Cross, Edmund	17.00	6538	Chambard, Louis	57.75
5553	Clark, Benjamin H	7.50	6544	Chapman, Neunahn	6.75
5628	Conkel, John A	6.75	6545	Cross, William	6.75
5629	Curtis, Charles G	18.00	6560	Cooper, Edward	54.75
5648	Curey, Milton	6.75	6581	Corder, Absalom	6.75
5664	Callahan, Daniel A	6.25	6584	Carter, John	6.75
5675	Call, James H	.75	6597	Carroll, Patrick	10.25
5694	Clark, Thomas D	14.25	6600	Clayton, William	6.75
5700	Cooper, Alfred H	57.50	6650	Connor, Charles E., deceased; Frances A. Connor, widow	.75
5703	Cammire, William, deceased; John E. Cammire, child	22.00	6652	Comer, Joseph E	6.75
5738	Chapman, Eugene	21.25	6664	Curran, Michael	27.00
5741	Crousore, John	6.75	6680	Collins, Elliott F., deceased; Eben G. Collins, father	15.50
5759	Cooper, Benjamin W	6.75	3916	Davy, Thomas F	1.50
5750	Carter, Alfred	66.25	3924	Dixon, Robert	12.75
5751	Collier, Joel E	7.00	4168	Downing, Lorenzo C	5.00
5752	Cox, Daniel	40.75	4199	Denis (or Dennis), John	17.50
5769	Clark, James I	9.00	4206	Drew, George J., deceased; William Drew, father	19.25
5779	Crossman, Irvin W., deceased; Maria Crossman, mother	24.25	4287	Davis, Bartholomew	3.25
5794	Coates, George	3.25	4311	Duncan, Joseph J	8.75
5806	Chandler, Thomas	6.75	4324	Davis, George W., deceased; Electa L. Davis, widow	6.00
5807	Cornell, William H	6.75	4376	Dunlap, Geo. M	20.50
5866	Campbell, George W	6.45	4370	Dasch, Edmond	9.50
5867	Conrad, Charles	6.75	4413	Dailey, Chas. H	7.50
5868	Cowen, Ezra H	6.75	4447	Davis, Martin V. B	9.00
5869	Cully, Willam	6.45	4452	Duckworth, Wellington A	10.00
5937	Curry, James R	6.75	4473	Dechaine, Eugene	2.25
5943	Cardinell (or Cardinal), Joseph	7.75	4498	Dolan, Patrick	7.50
5962	Clingenpeel, John	6.75	4505	Daly, John	20.00
5969	Champion, John M	3.25	4280	Dampman, John W	5.00
5986	Carr, Peter	50.25	4269	Day, Jesse J	6.50
5998	Cooper, William, deceased; William Cooper and Nellie F. Hall, only children	.50	4281	Doherty, John	11.25
5999	Courtright, Leander, deceased; Mary A. Courtright, mother	101.00	4547	Dunnavan, Geo., deceased; Alexander Dunnavant, Mitchell and Frank Harney and Silvia Borgus, half brothers and sister and only heirs	57.25
6006	Crubaugh, Joseph B	7.50	4600	Devereux, Joseph	7.75
6014	Clark, David M., deceased; John Clark, James Clark, W. Elmer Clark, George Clark, Edward Clark, brothers	27.75	4621	Davis, John	16.00
6043	Cramer, Richard	31.00	4710	Donlan, Thomas, deceased, Catharine Donlan, widow	21.25
6121	Cook, Jacob	6.75	4806	Davis, John W	8.75
6122	Cross, Levi M	6.75	4852	Dawkins, Joseph, deceased, B. F. Dawkins, J. G. Dawkins, and William Dawkins, brothers	7.50
6123	Cross, Richmond M	6.75	4877	Davis, Sidney W	5.00
6124	Cummins, Thomas B	6.75	4890	Davis, Samuel J	5.00
6137	Cook, George	6.75	5182	Davis, Dailey	6.75
6148	Chestnut, Thomas J	6.75	5183	Decker, Peter	6.75
6151	Cole, Guge (or George) W	6.75	5227	Dawson, John H	6.75
6164	Cook, Charles S	6.25	5238	Darrogh, Charles	6.75
			5239	Dunnihoo, Andrew J	6.75
			5240	Dunnihoo, Nelson	6.75

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.	No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.			WAR DEPARTMENT—Continued.	
5264	Davis, Philip L	$6.75	3915	Follansbee, Moses W., deceased; Martha J. Follansbee, widow	$4.25
5265	Duckworth, William	6.75			
5301	Dryden, William	6.75	3998	Filer, Joshua	7.00
5330	Daily, Thomas	31.75	4065	Farnham, Oscar E	13.00
5412	Drenning, Daniel, deceased; Ann Drenning, mother	12.25	4158	Farrell, Michael	41.50
5422	Dean, Albert	38.25	4189	Frink, Jerome W., deceased; Amelia E. Frink, mother	30.50
5462	Dickerson, Elisha	6.75	4215	Foley, John J	26.00
5611	Donely, Samuel	8.25	4313	Fitzgerald, Thomas	7.50
5612	Douglas, Volney D., deceased; Nancy A. Douglas, widow	7.25	4401	Fischer, Phillip	4.00
			4436	Flacke, Charles	1.25
5630	Delawter, Jacob	6.75	4488	Fox, Reuben	7.25
5676	Douthitt, Robert J	33.00	4453	Flynn, Michael	1.50
5683	Durfey, Dexter	5.00	4470	Fickel, Henry H	3.75
5686	Davis, Gabriel, deceased; Ashley E. and Emmett M. Davis, children	31.25	4497	Folsom, Wm. M	3.00
			4495	Farrar, Sidney A	37.25
			4262	Funkhouser, Joseph C	33.00
5701	Dewey, Roby	3.25	4637	Frazier, John A	45.75
5892	Danner, William	6.25	4645	Franklin, Jasper E	7.50
5938	Darnall, Alvarian	6.75	4713	Fitzgerald, James E	102.25
5942	Drummond, William D	6.25	4761	Felger, Henry	45.00
6040	Dodge, Benjamin C	8.00	4762	Filley, Terry M., deceased; Mary Counterman, Lydia Ball, and Frank Filley, children	26.00
6142	Douglas, Launcy L	3.25			
6212	Davis, Henry P	6.75			
6344	Derby, Levi	53.25			
6352	Daniels, Charles F	12.50	4788	Furlong, Patrick H	13.75
6391	Devaughn, Samuel, deceased; Rachel Graves, late widow	6.75	4848	Foland, George	10.50
			4891	Faulkner, Joseph F	30.50
6420	Dimond, James	9.00	5153	Finney, David A	6.75
6468	Degnan (or Dagnan), Patrick	5.25	5154	Finney, John V	6.75
			5155	Fuller, Curtis P., deceased; Amitha M. Fuller, widow	63.00
6474	Denton, Isaac	6.25			
6475	Dowden, Jesse L	6.25	5255	Ferree, William D	6.75
6476	Drummond, Robert A	6.75	5256	Fleming, Asbury	6.75
6612	Dobson, Thomas	22.75	5290	Fifer, Benjamin	6.75
6653	Darby, John M	6.75	5405	Freed, Joseph M	6.75
6666	Davenport, Benjamin F., deceased; Mary D. Davenport, widow	6.75	5463	Fleming, Alexander, deceased William Fleming, brother	6.75
			5464	Frost, Thomas G	21.50
6667	Dressler, William	7.50	5488	Forbush, Thomas	11.50
4096	Eisenhower, John F., deceased; Jacob Eisenhower, father	35.00	5524	Filson, William H	13.25
			5540	Flanigan, Francis	.75
			5620	Foor, Robert C	9.00
4155	Elliott, Cyrus	29.75	5687	Foster, Robert M., deceased; Catherine or Catharine A. Foster, widow	52.25
4184	Egee, James V	20.75			
4235	Eagan, Peter	8.75			
4312	Eicher, Lucas	13.25	5695	Feas, Gottleib	57.75
4420	Evans, Sylvester W	64.00	5733	Fowler, John T	20.00
4579	Edwards, David	36.75	5781	Floyd, John	3.25
4594	Eddings, Aaron, deceased; Ed. White, only brother	55.00	5787	Francis, Joshua	3.75
			5808	Francis, John	6.75
4699	Ellis, Thomas J	62.00	5818	Furgeson, Lincoln (or Furgerson)	6.75
5127	Eberts, William	5.00			
5146	Edwards, James, deceased; Joanna S. Edwards, mother	11.50	5847	Fanchier, Francis E	6.75
			5855	Ford, George W	8.75
			5922	Frantz, Heinrich	6.75
5184	Ely, William Allen	6.75	6125	Fritz, Chauncey	6.75
5254	Elliott, William S	6.75	6165	Fravel, James	6.25
5266	England, James	6.75	6244	Fink, Jacob G., deceased; David H. Fink, John R. M. Fink, Geo. W. Fink, Martha J. Hamilton, Margaret E. Snyder, brothers and sisters	14.00
5331	England, John W	6.75			
5714	Ellis, Andrew M	25.75			
5747	Edgington, Nathan	28.25			
5846	Ewbank, John A	6.75			
5873	Eygabroad, Barney	22.75			
5980	Elzey, Ezekiel	6.25	6302	Frame, Allen	3.25
6218	Eaton, Moses E. F	6.75	6410	Foust, William	3.25
6406	Ely, Jacob R	12.00	6437	Fisher, Andrew B	3.25
6428	Ehrman, Charles	6.75	6438	Flanders, Orlando, deceased; Alonzo R. and Nancy B. Flanders, parents	26.25
6463	Essig, Henry	6.75			
6482	Easton, Nicholas	6.75			
6492	Easton, Richard M	6.75	6448	Fisher, Samuel, deceased; Mollie G., William J., and Clara P. Fisher, children	8.75
6547	Enyart, Martin	3.25			
6598	Elkins, James	48.00			
6654	Etter, James, deceased; Sarah Etter, widow	6.75	6655	Frost, James, deceased; Louisa Frost, widow	6.75
			6669	Furry, Richard	23.50
6668	Eckes, John N	10.00	3944	Green, William C	3.75
3914	Finical, Benjamin F	7.50			

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.	
3949	Gilham, William	$8.75
3987	Gamble, William, deceased; Elmer E. Gamble, Catherine Wingfield, John C. Gamble, Samuel L. Gamble, George M. Gamble, brothers and sisters	19.50
4058	Gehe, George	8.25
4068	Gibbs, Isaac, deceased, Grissella Gibbs, widow	13.00
4071	Garrison, William G	5.00
4074	Gebhart, Samuel H	5.50
4076	Groves, Samuel, deceased; John and Hannah Groves, parents	68.75
4109	Gremsted (or Grimsted or Grinsted), Samuel P	24.50
4148	Gillen, George W	45.25
4157	Grisom, John	28.25
4161	Gibson, Thomas	20.00
4251	Gruver, Joseph	32.25
4292	Grubb, Jonas	45.75
4295	Gray, Edward	5.00
4325	Grim, William	13.25
4377	Gale, Henry	11.75
4358	Gilman, Andrew	.50
4448	Griffin, Wesley	43.00
4588	Groner (or Gromer), Joseph	33.75
4601	Govan, Kinchen	16.00
4622	Govan, Wiley	16.00
4265	George, Samuel	16.50
4635	Gilbert, Charles (alias Cooper)	17.50
4636	Gibson, Alexander, deceased; Mary L. Cady, only child	48.50
4740	Gilliam, Maffit P	5.00
4803	Gosnell, George S	13.75
4804	Graves, Charles T	44.25
4892	Glass, Hugh B	26.25
5100	Goodlander, Forest M	6.75
5156	Grass, Thomas L	6.75
5228	Godfrey, Jacob	6.75
5229	Grimes, Patrick	6.75
5241	Gould, Joseph	6.75
5242	Gould, Richard H	6.75
5257	Glassford, George W	6.75
5465	Gassman, John C	6.75
5457	Goss, Warren L	19.00
5466	Grimes, Theodore	6.75
5467	Gurtner, John	6.75
5496	Graham, John	8.75
5525	Gilliland, Josiah	8.75
5545	Gallagher, Thomas	14.75
5603	Gano, Richard	6.75
5621	Gifford, Will M	6.75
5649	Gregory, James	6.75
5685	Gooding, Bud	33.25
5688	Gooch, Claiborne	4.75
5704	Graham, William A	21.25
5705	Greenwood, William	61.00
5748	Gates, John H	21.50
5749	Grantham, Alva C., deceased; Mrs. N. J. Grantham, mother	111.50
5753	Geasey, Henry	10.00
5772	Gott, Thomas W	18.75
5791	Gray, Andrew	7.50
5848	Graham, Alonzo	6.75
5849	Gregg, Andrew	25.00
5901	Groneweg, Edward, sr., deceased; Edward Groneweg, jr., only child	43.00
6008	Goodner, Jacob J	5.50
6015	Gants, William F	7.50
6055	Gilkison, John M	41.50
6091	Gregory, Wilson S	6.75
6107	Gordon, Richard	39.00
6187	Gatewood, Elison	3.25
6194	Geron (or Gerron), Dudley, deceased; Ann Geren (or Gerron), widow	$6.25
6203	Goodrum, George	17.00
6257	Guard, Henry	15.75
6345	Geer, Madison	7.50
6367	Glasson, Oliver M	6.75
6411	Guistwite (or Geiswhite), Daniel	45.75
6412	Gordon, Galathia	3.25
6413	Gugal, Christian	3.25
6414	Guthridge, Thomas W	3.25
6429	Gorslin, Sylvestor L	6.75
6434	Gussler, David	2.50
6442	Goodwin, Richard H	68.50
6546	Grantham, Walter B	6.75
6595	Gordinier, Jay	7.50
6601	Gyger, Isaiah	6.75
6646	Gilpin, James W	11.00
3926	Hodge, Frederick	7.50
3945	Holmes, James A	7.50
3950	Holmes, Philip	6.75
3961	Hutton, Joseph E	3.75
3967	Horrall, Henry C., deceased; Edwin R. Horrall, Darius A. Horrall, Sylvester Horrall, and Irwin C. Horrall, brothers	14.50
3975	Hammack, Martin, deceased; Milvina Hammack, widow	30.25
4000	Honan, James	2.75
4001	Harm, Hans F	10.00
4026	Hagadon, Henry J	22.50
4040	Hall, Alfred L	7.50
4041	Harrington, Jeremiah	4.75
4045	Harkless, William	10.25
4061	Howerton, John F	3.00
4066	Hubbard, Newton	3.75
4072	Hubbard, Oramandel	18.50
4075	Hunt, Willard, deceased; Samantha Hunt, widow	27.25
4084	Huff, Daniel D	55.50
4118	Hamilton, Calvin	34.00
4127	Hallowell, Jonathan C	2.50
4135	Henderson, Michael, deceased: C.R. Lowe, administrator	66.50
4149	Hurst, James E	43.25
4153	Hardy, Sanford S., deceased; Eli Felch, guardian of Cora and Ellen S. Hardy, minor children	15.50
4186	Huffman, George T	7.25
4236	Hayes, Albert W	34.25
4240	Harrison, Job C	33.25
4254	Hall, Egbert	9.50
4314	Hannant, Frederick N	6.75
4315	Hughes, David	34.75
4339	Hopkins, Allen F	7.50
4353	Hanscom, John C	6.25
4379	Henry, Jacob	6.75
4359	Hunt, Ralph	13.50
4402	Hardeman, Mingo	55.00
4389	Hohn, John	13.25
4474	Hogaboom, Isaac	10.00
4496	Hand, John	7.50
4506	Hay, Peter	8.75
4517	Hale, William R	93.00
4526	Harper, Robert S	9.25
4266	Hyer, Absalom	3.25
4580	Henderson, Francis M	41.25
4273	Henry, Isaac E	7.25
4614	Hazleswort, Philip, deceased; Martha A. Hazleswort, widow	8.75
4615	Hantz, Benjamin F	6.75
4655	Hanger, Henry H	7.50
4656	Howard, Henderson	5.00
4668	Horner, John	17.00

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.	No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.			WAR DEPARTMENT—Continued.	
4339	Hopkins, Allen F	$7.50	6188	Herbert, Valentine	$9.25
4854	Heald, Thomas R	5.00	6204	Horn (or Horns), Hezekiah	26.50
4934	Hancock, Stephen L., deceased; William H. Hancock, only child	7.50	6213	Hill, William	6.75
			6254	Hartley, William A	30.50
			6258	Hodson, Jeremiah B	3.25
4935	Hussey, George W., deceased: Abraham Hussey, only child	50.25	6281	Hatton, Abraham	64.50
			6282	Hildreth, Chester C	40.50
			6283	Hart, Silas W	3.25
4956	Hamlin, Charles	22.50	6303	Haven, Henry H	8.75
5126	Henninger, A. J	7.50	6309	Hart, Henry	6.25
5141	Harmon, Franklin H	3.00	6310	Holeman, William P	6.25
5157	Henderson, James P	7.50	6331	Hobson, Hiram Mc (or M. C)	6.75
5185	Haffner, William R	6.75	6357	Hare, Patrick	7.50
5203	Heath, Bethnel, deceased; Elizabeth A. Heath, widow	34.50	6392	Hudson, William	1.00
			6430	Hoffman, Daniel	6.75
5258	Hunt, Ezra S	6.75	6439	Harvey, William H	7.75
5278	Houser, Lewis	6.75	6469	Huntley, Henry E	16.00
5321	Hart, William H	6.75	6493	Hevelin, Jackson E	6.75
5332	Hancock, Francis M	6.75	6561	Hunter, John S	19.00
5345	Hacker, John B	8.00	6602	Hays, Andrew J	6.75
5391	Hamilton, John	6.00	6618	Hainer, George	17.00
5392	Hughes, William H	4.00	6644	Hill, William P	42.00
5393	Hunter, Frank	19.00	4027	Ingersen, Lewis M	6.25
5406	Hayward, Thomas B	6.75	4129	Ingram, Samuel P	81.50
5409	Hopple, Jacob	7.75	4475	Ingram, Hezekiah	17.25
5423	Humphrey, George W	6.75	4476	Ives, Richard F	7.00
5424	Hurd, Melvin A	6.75	5072	Ifert, George W	6.75
5458	Hyde, Nathan	132.25	5424	Irwin, Isaac M., deceased; John Irwin, father	24.25
5489	Hastings, Charles E	16.00			
5526	Hurley, John R	30.25	6092	Idle, Elijah	92.50
5529	Henderson, Joseph, deceased; Nancy C. Henderson, widow	12.25	6266	Irvine, John	8.50
			6477	Inman, Robert	6.25
			3923	Jordan, William, deceased; John L. and Charlotte Jordan, parents	69.25
5541	Herron, James	13.50			
5567	Hall, Theodore	6.75			
5604	Hoover, David	6.75	3972	Joslin, Samuel A	1.75
5605	Hoover, Joseph	6.75	4064	Jenkins, William	14.75
5631	Henderson, Calvin	15.75	4222	Jenkins, William	36.50
5632	Hotchkiss, Michael D., deceased, Sarah E. Hotchkiss, widow	3.75	4290	Jackson, Henry	6.75
			4316	Jeffries, George	67.50
			4317	Jenkins, Nathaniel	10.25
5613	Hickernell, Robert	7.50	4477	Johnson, Wm. H	24.25
5667	Hackett, William C	10.75	4472	Jennings, Chas. W	5.50
5668	Hubbard, James	32.75	4507	Jackson, Geo. W	4.00
5684	Hair, David H	12.75	4274	Jewell, Zachariah	6.00
5692	Husk, John, deceased; Olive E. Kelley and Jane Wagoner, children	61.25	4285	Jackson, Abraham G	69.25
			4691	Johnson, William	26.25
			4735	Jones, John A	56.50
5696	Hoffman, George W	10.00	5074	Jackson, Francis M	6.75
5702	Houlle, Ephraim	24.00	5075	Jackson, Stephen J	6.75
5715	Handlen, Joseph M	5.00	5186	Johnson, Samuel	6.75
5716	Hendrickson, Ole	15.75	5187	Jones, Hiram A	6.75
5770	Henderickson, Peter	42.50	5243	Juday, John L	6.75
5795	Hageman, Gaddis P	3.50	5425	James, William H	6.75
5809	Hurst, Isaac C	6.75	5449	Justice, David	92.00
5819	Hutchins, George A	17.50	5468	Johnson, Elisha G	6.75
5835	Hannefey, James	6.25	5469	Johnson, S. P	6.75
5836	Hanner, Sylvester	6.25	5470	Johnson, William	6.75
5850	Harris, John R	49.50	5530	Jackson, James H	12.25
5893	Hendricks, John	6.75	5633	Jetter, John D	6.75
5894	Horsley, Isaac	6.75	5635	Johnson, Fayette N	22.75
5923	Hawk, Frederick	6.75	5644	Jackson, Robert V	8.00
5939	Hanner, John W	6.75	5650	Jones, Thomas W	6.75
5952	Hendrixson, Abram	6.75	5810	Jones, William T	6.75
5953	Higgs, James M	6.75	5820	Jarvis, Solomon	6.75
5965	Harbison, Robert	21.25	5837	Janes, George	6.25
5985	Hollenbach, Samuel, deceased; Catharine Kissling, sister	47.25	5927	Johns, Enoch	34.75
			5928	Johnson, Wells	34.25
			6304	Johnson, Edward	3.25
6108	Hatfield, James	3.25	6478	Johnson, George M	6.75
6138	Hatfield, Ale	7.75	6518	Jones, William L	6.50
6150	Henderson, John T	6.75	6585	Jordan, Jasper	7.25
6151	High, Edwin W	6,75	3946	Keables, Silas F	7.50
6149	Hays, George W	6.75	4083	Kent, Joshua	7.50
6163	Huffman, James W., deceased; Esther C. Huffman, widow	22.75	4085	Kinsler, John, deceased; Alice Kinsler, widow	9.10
			4133	Knight, Levi W	24.00
6166	Hancock, William R	6.25	4134	Kendall, William W	7.50

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.	
4152	Kate, Lorenzo	$7.50
4177	Kibler, George, deceased; James E. Kibler, only child	2.00
4229	Kearnaghan, Henry	10.00
4241	Keenan, Peter	73.75
4242	Kennedy, William, deceased; Widow Kennedy, mother (Indian name)	59.75
4245	Knost, Mathias	6.75
4318	Kimball, Job R	19.75
4380	Keegan, Edward	64.25
4394	Kendig, Lewis	32.25
4417	Kellogg, Edward H	27.75
4275	Kehr, John	6.25
4276	Klumpp, Christian	13.25
4595	Kinlock, John	5.50
4569	Knapp, Charles W., deceased; H. Olivia Knapp, widow	6.75
4646	Kennison, Ephraim	7.50
4689	Kelsey, Alexander, deceased; George Clark, guardian minor children	6.50
4690	Kauble, William	38.75
4829	Kennedy, Henry	13.50
4957	Kuntzmiller, Henry, deceased; Margaretta Mogg, late widow	7.50
5101	Kanable, Charles E	6.75
5198	Kern, Washington	6.75
5204	Kessler, John	6.75
5230	Kelley, Constantine	6.75
5267	Kelly, William	7.50
5279	Kanable, Franklin R	6.75
5344	Knight, Hiram J., deceased; Jennie Milligan, formerly widow	7.50
5394	Kientle, Michael	8.75
5490	Knox, Donald, deceased, Catherine E. Knox, widow	4.75
5513	Kennedy, John	5.00
5697	Kelso, John M	13.50
5760	Kennedy, John R	6.75
5782	Kutcher, Louis	6.00
5838	Kent, George W., deceased; Mary E. Kent, widow	7.50
5981	Kenan, James	58.50
5982	Kemm, William N	5.00
6009	Kline, Valentine	11.75
6010	Kreps, William H	5.50
6189	Kelley, Robert	49.25
6190	Kenoyer, Aaron	3.25
6214	Kind, Robert	7.50
6289	Kohlepp, John	21.00
6293	Keller, John J	3.25
6296	Kennedy, Theodore	38.00
6582	Kinnear, Robert L.	15.50
3968	Lawler, Thomas	4.25
3973	Leroux, Julius A	7.50
3977	Lenhart, Jonas S	8.75
3981	Lenham, Benjamin M	7.50
3982	Lane, Jesse	15.25
4117	Lewellen, John	5.00
4150	Latham, Perry S	31.75
4173	Loop, Sidney B	21.00
4228	Lantry, Thomas	119.50
4230	Lessick, Samuel	3.00
4231	Locke, John W	47.75
4340	Leetsinger, Lewis E	6.75
4341	Littlepage, Charles C	7.50
4381	Long, Stephen M	9.75
4360	Level, Levi	29.00
4449	Lowrimore, Jno	10.25
4471	Lepper, Jacob J	23.50
4484	Landis, Abram	27.50
4483	Landis, B. H	24.25
4272	Larkin, Theodore, deceased, A. A. Larkin and Mary E. Bailey, brother and sister	$43.25
4282	Lichty, Jacob P	11.25
4566	Lewis, Benjamin F	23.00
4609	Long, Frank P	5.75
4629	Lawson, John, deceased; John F. Lawson, Frances Longstreth, Susannah Stockdale, and Leander Lawson, children	78.50
4657	Leadford, Leander	5.00
4714	Lewis, William	7.50
4790	Lowthert, William	8.75
4878	Lott, John	7.50
4856	Lawson, Robert	7.50
5108	Lybrook, David	6.75
5158	Larome, Charles	6.75
5199	Little, Joseph	6.75
5231	Lyons, Zachariah	6.75
5291	Landers, Henry	6.75
5333	Lee, Gabriel, deceased; Hannah Lee, widow	6.75
5334	Lipperd, John W	6.75
5413	Ludlow, George F. (alias Austin)	2.50
5416	Lakin, William A., deceased; Martha J. Lakin, widow	9.75
5426	Lacy, John C	6.75
5471	Louden, Jacob	6.75
5546	Longsley, Francis M	6.75
5565	Leary, Michael, deceased; Annie Leary, widow	10.00
5634	Lewis, Andrew J	2.50
5636	Lewis, Nowel P	17.25
5761	Leforge, James F. (or Lefforge)	6.75
5783	Loy, William H	63.50
5811	Laughlin, David K	6.75
5821	Lawell, Oscar F., sr	6.75
5872	Lyons, John	26.50
5904	Lewellen, William	27.00
5929	Long, Charles	6.75
6070	Lemaster, William	6.75
6071	Longest, William	6.75
6093	Leopold, John	9.00
6098	Lewis, James P	21.00
6152	Lewton, Lewis W	6.75
6153	Lutes, Hamilton	6.75
6191	Lambert, James	60.00
6195	Lennan, William A	2.50
6340	Lance, Alfred M	21.00
6353	Lewis, William R	3.25
6368	Long, Lewis	6.75
6384	Lemaster, Miles	6.75
6394	Leak, Thomas	3.00
6557	Lemon, William, deceased; Lelora and Justina L. Lemon and Anna M. Harris, children	19.00
6576	Liney, John J	3.00
6579	Lockner, John G	15.25
6619	Langley, John	6.75
3912	McDuffie, Dexter	5.00
3913	McWilson, William	17.75
3917	McMahon (alias John Mack)	50.25
3938	McNelly, Joseph	1.00
3962	McCoy, Jeremiah	9.25
3989	McAry (or McNary), Warren	51.00
4081	McComas, John K., deceased; Alexander and Mary McComas, parents	27.00
4092	McKinney, William	13.25
4105	McPherson, John A	73.75
4130	McMaster, Thomas S	5.00
4140	McCormick, Thomas	6.75
4207	McCarthy, Cornelius	88.75

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.	No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.			WAR DEPARTMENT—Continued.	
4319	McHenry, Daniel F	$3.25	5076	Mingle, Madison	$6.75
4418	McElwain, Frank	29.25	5130	Moccobee, John	6.75
4365	McHugh (alias Riley), Constantine	47.25	5132	Martin, Alexander F	6.75
4440	McCormick, David	11.50	5147	Merritt, George	8.00
4509	McKinney, Frank	10.50	5159	Morrison, John	6.75
4558	McKenney, James S	20.50	5160	Morrical, Mahlon	6.75
4644	McCluskey, John, deceased, Sarah McCluskey, widow	7.50	5161	Morris, James	6.75
4712	McColley, William	50.25	5162	Miller, Charles W	6.75
4826	McMaken, William	8.25	5164	Mullin, William J	6.75
4209	McMurtra, Carson (or Carson McMurtry)	95.00	5166	Martin, Joseph R	10.00
5148	McCleaf, William, deceased; Robert F. and John A. McCleaf, George A. McCleaf, Jennie Morris, and Catharine Forbes, brothers and sisters	39.75	5167	Mobley, Benjamin, deceased; Robert and Frank Mobley, Celesta Yeager and Malinda Pryor, only children	34.25
5163	McCoy, Calvin	6.75	5200	Meyer, Jacob	6.75
5244	McCollum, Eli	6.75	5201	Mallonee, Thomas W	6.75
5407	McCombs, James	6.75	5205	Myton, Joseph	6.75
5472	McClure, Train C	6.75	5206	Mumma, George W	6.75
5491	MacGregor, John C	7.50	5207	Marlett (or Marlatt), Hezekiah R	6.75
5492	McGurkin, Robert, deceased; Isabella McGurkin, widow	6.25	5208	Myers, Henry H	6.75
5505	McWilliams, Ingo D	5.00	5209	Morehous, Charles A	6.75
5568	McDunlap, Robert	30.75	5211	Magner, John	6.75
5569	McWharter, Lynn	6.75	5232	Marlatt, Charles E	6.75
5606	McCain, Benjamin F	6.75	5233	Monroe, Libbins	6.75
5706	McCamie, Francis H	53.25	5280	Moore, David A	6.75
5812	McCormick, William H	6.75	5281	Mosure, Ephraim	6.75
5966	McCune, James	6.25	5282	Moulder, Oliver L	6.75
6064	McConnell, Albert	43.50	5292	Mallonee, William P	6.75
6095	McDonald, Elias	6.75	5293	Martz, Silas C	6.75
6096	McClelland, Samuel (or McLelland), deceased; Sarah J. McClelland, widow	6.75	5335	Maley, Michael	6.75
6193	McDaniel, John C	7.50	5427	Masters, John W	6.75
6205	McCoy, Harrison, deceased; Sarah McCoy, widow	6.75	5428	Milledge, Mortimer L	10.25
6294	McClure, William P	3.25	5429	Moore, William H	6.75
6311	McCleary, John	6.25	5430	Moncrief, John C	6.75
6431	McConnell, William M	6.25	5473	Mercer, Edward	6.75
6494	McHugh, Henry B	6.75	5474	Moor, Anderson S	6.75
6682	McCarrick, Thomas T	85.75	5497	Morgan, Merrill	28.25
3959	Meeks, James, deceased; Sarah Meeks, widow	7.50	5498	Morris, Edward, deceased: Rachel Morris, widow	1.00
3986	Maenner, Charles	44.75	5514	Mahoney, William	6.75
4028	Maxey, James N	19.50	5547	Mills, Benjamin	6.75
4054	Mishler, Louis	8.25	5548	Morford, Joseph, deceased; Sarah A. Morford, widow	6.75
4124	Montgomery, William	9.00	5608	Mote, Alfred	6.75
4160	Morgan, Jonathan N	7.00	5614	Mathews, Miles, deceased; Nathan Matthews, Alpha Matthews, Louisa Haberstroh, Rebecca Ann White, Job Matthews, brothers and sisters	84.75
4197	Milligan, David Y	5.00	5637	Miller, Mathias	6.75
4237	Morris, Mason	3.25	5639	Morrow, John L	4.00
4238	Mailloux, John	37.25	5669	Miller, Jerry	15.75
4243	Monroe, Josiah	6.00	5670	Miller, Jonathan	37.50
4248	Montgomery, William E	17.00	5707	Millholland, William	4.75
4255	Miver, John	3.25	5717	Moulder, James L	48.75
4291	Mattingly, James A	4.50	5739	Maynor, William, deceased; Margaret J. Maynor, widow	24.25
4354	Monks, James, deceased; Anna Monks, mother	34.75	5742	Maglinn, James	6.25
4382	Mayer, Jno	30.00	5762	Maley, Patrick	6.75
4411	Maxham, Oscar, deceased	29.25	5763	Modlin, George W	6.75
4429	Miller, James T	14.75	5764	Morford, Elisha	6.25
4437	Miller, Clark	40.50	5784	Marshall, James	4.75
4438	Meeker, Rolla	39.50	5813	Miller, Frederick	6.75
4267	Mallery, Charles	7.50	5814	Moore, Stephen J	6.75
4270	Mulhall, John C	36.75	5822	Marks, Walter D	25.50
4590	Munday, Charles	16.50	5823	Mullikin, William P	6.75
4596	Marker, Henry M., deceased.	13.25	5639	Mead, Joseph, deceased; Jonathan Mead, administrator	11.50
4640	Muire, George W.; John H. Muire, brother	10.75	5851	Marsh, David (or David F)	8.00
4717	Maxey, Mason	22.50	5940	Matlock, William M	6.75
4770	Miller, Jonathan L	15.75	5944	Murphy, John, deceased; Naomi A. Murphy, widow	51.00
4857*a*	Mattison, L V. S	5.00	5970	Michalk, Charles	46.50
4893	Marshall, Albert	12.75	5987	Marcum, Edward	2.00
4968	Miller, John	3.75			

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.	No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.			WAR DEPARTMENT—Continued.	
6016	Maple, Francis M	$6.25	4529	O'Mara, Dennis	$18.00
6017	Myers, John	88.75	5078	Osenbaugh, James M	6.75
6065	Murray, Richard	15.50	5109	Osborn, John	6.75
6073a	Morrison, Horace	46.50	5188	Osborn, Oliver L	6.75
6094	Malott, John	6.75	5189	Osborn, Tence L	6.75
6099	Muldoon, Philip	2.75	5671	O'Keeffe, David	10.00
6192	Miller, Charles S	6.00	5744	Oldfield, Henry	6.50
6215	Miller, Moses	14.00	5788	O'Neil, Michael	20.75
6219	Murray, Cunningham, deceased; Samuel Murray, father	52.50	5840	Oliphant, Francis M	6.25
			5841	Olmstead, H. I	6.50
			6355	Osborne, William B	3.25
6245	Medkirk, Robert W	7.50	6422	Osborn, James T	6.75
6259	Montgomery, Robert	3.25	3925	Putt, Oliver (alias Oliver Hubler)	26.00
6267	Miller, Lewis C	6.25			
6284	Marsh, Henry	13.25	3927	Parry, Thomas	30.50
6285	Massoth, Henry	3.25	3937	Peterson, Anton	7.00
6286	Moore, James S	49.50	3988	Patterson, Van Buren	44.50
6332	Masters, Jacob K	6.25	4049	Perkins, George A	48.75
6333	Miles, John L	6.50	4053	Price, George	16.75
6374	Mannen, James M	3.25	3808	Pierce, Corydon, deceased; Rosetta A. Fuller and Horace M. Pierce, only children	54.00
6378	Mefford, Andrew	5.00			
6383	Macusker, Hugh	7.50			
6403	Morrison, Daniel, deceased; Margaret Morrison, widow	26.25	4154	Pennington, Josiah	7.50
6421	Morris, Samuel	50.25	4220	Penn, Joseph	16.25
6432	Miller, Eli W	6.75	4223	Plunkett, Walter	21.25
6449	Marmon, Milton (alias J. M.), deceased; Joseph E. Marmon and Louisa A. Bishop, brother and sister	30.00	4321	Pratt, William	9.00
			4320	Parker, Azor A	47.75
			4337	Parker, Henry	37.25
			4342	Peifer, Nicholas	7.00
6465	Marshall, Hamilton E., deceased; Delmont D. Marshall and Ella V. Clark, children	59.25	4366	Pingleton (or Bingleton), Henry	57.50
			4419	Pugh, Richard E	13.75
			4510	Pohlmeyer, Edward	28.00
6483	Miller, John C	6.75	4538	Panter, Wm. Rufus, deceased; Calvin Panter, father	73.75
6491	Mitchell, Logan B	53.75			
6535	Mosher, John A	10.75			
6599	Marsh, Richard	7.75	4567	Preston, Christopher	19.50
6647	Michael, George	3.25	4572	Porter, Richard W	16.00
6670	Maring, John N	6.75	4610	Parsons, Sidney N	6.00
3963	Noble, Henry G	6.75	4697	Proctor, Thomas B	2.50
4022	Nolen, David	6.75	4741	Preslet, Stephen E	6.00
4147	Neel (or Neal), Duncan	7.75	4807	Peery, Thomas B	10.00
4232	Newkirk, Jackson	7.50	4847	Peterson, Burghardt, deceased; Margaret Peterson, mother	50.50
4256	Nichols, Jenkins	3.00			
4355	Newcomer, Christopher	6.25			
4439	Nochtigall, Herrmann	5.00	5097	Prather, William H	6.75
4454	Norton, Cariton	4.50	5104	Parrish, Joseph L	6.75
4445	Newman, Jno. C	7.50	5105	Parrish, Joshua R	6.75
4459	Nichols, Isaac	5.00	5106	Parrish, Abner S	6.75
4855	Nichols, Richard W	7.50	5234	Pippin, Joseph	6.75
5077	Nelson, Griffith	6.75	5268	Parvis, Jonathan	6.75
5168	Nichols, Samuel, deceased; Joseph, Henry, and Charles Nichols, and Sarah A. and Mary A. Pailthorp, brothers and sisters	59.00	5302	Pinkston, John	6.75
			5322	Poppino, Silas C	6.75
			5323	Pruitt, Richard	6.75
			5414	Parker, Loren D	13.25
			5431	Pansey, Joseph L	6.75
5245	Neptune, James I	6.75	5475	Phifer, John	6.75
5499	Neal, James M	8.75	5476	Pruitt, Aaran	6.75
5506	Nickerson (or Nickason), James C	18.75	5493	Palmer, James M	32.25
			5473	Pierce, William	37.25
5570	Nail, John	64.00	5507	Preston, William	4.75
5736	Naragon, James A	6.25	5415	Pitcher, Philip	4.00
5743	Nicolai, Henry	6.75	5516	Pyatt, James	3.25
5870	Northrup, Ebenezer	6.25	5554	Paddock, Anthony H	4.75
6385	Noblett, Woodson	6.75	5609	Phillips, John F	27.25
6484	Nautroup, Henry	6.75	5615	Paul, Joseph	6.50
6603	Noe, Hiram F., deceased; William H. Noe, father	6.75	5638	Pavy, Samuel	6.75
			5640	Parker, James C	1.50
3947	Overlock, Francis B	10.00	5641	Pearson, Zeno	20.25
3983	Osborn, Eugene A	43.25	5665	Phillips, Henry A	4.50
4002	O'Hare, Michael	81.50	5666	Priddy, Jesse F	16.25
4052	O'Rourke, William	8.75	5718	Peyton, Thomas J., deceased; Alvira Moore, Eliza F. Murphy, and Sarah Johnson, children	269.50
4200	Ormsbee, William, deceased; Saphrona Traves and Louisa S. Fox, sisters	7.25			
4233	Oyler, Wesley D	7.50	5734	Poe, Chester, deceased; Sarah F. Allison, former widow	6 75
4399	O'Briester (alias Jno. Schaa), John	24.75			

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.	No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.			WAR DEPARTMENT—Continued.	
5745	Perry, Joseph S	$46.25	5518	Rocker, Hugo	$8.25
5789	Parrott, Nimrod	15.25	5556	Ryder, Walter V. R., deceased; Caroline Ryder, widow	41.75
5895	Pegg, Samuel C	6.75			
6066	Parrott, Joseph A	131.75	5616	Rooney, William J., deceased; Mary Rooney, widow	56.75
6106	Parks, George W	19.00			
6139	Phillips, William R	7.50	5643	Rowley, William	11.75
6170	Purcell, Thomas	38.50	5672	Richie, Moses	8.75
6220	Piper, William O	3.25	5708	Russell, Enoch T	1.50
6221	Post, Ezra	15.25	5746	Ralph, Charles M	67.75
6312	Paris, James	6.25	5765	Reed, Stewart	6.25
6337	Peringer, Michael	10.25	5815	Roe, John P. A	6.75
6358	Pool, John W	6.75	5842	Reel, Francis M	6.75
6404	Potts, Stephen M	6.75	5843	Rich, George W	6.25
6443	Pierson, Charles	7.50	5856	Rielly, John H	34.25
6450	Pennock, Thomas	4.00	5917	Ryman, Alanson R	6.75
6471	Peterson, Henry C	20.25	5930	Reynolds, Daniel P	6.75
6485	Pugh, George L	6.75	5931	Richey, Asbury	6.75
6500	Pierce, Jacob	4.75	6007	Ryman, Jared C	6.75
6501	Potwin, Napoleon	7.50	6011	Reed, George C	9.00
6502	Power, John C	7.00	6083	Rush, William C	7.50
6517	Payne, John M., deceased; Eleanor Payne, mother	6.75	6084	Russell, William	6.75
6530	Pittman, Hiram	6.75	6143	Reinhard, Benjamin F	8.75
6539	Pratt, Seth B., deceased; Emma Pratt, widow	3.25	6168	Rice, Edwin A	60.75
6562	Payne, George W	8.00	6171	Ruff, Samuel	1.25
6563	Philips, Francis M	3.50	6216	Robbins, Montraville	6.75
6564	Pruett, Jonathan	3.25	6260	Ritter, John J	3.25
6638	Proffitt, John E	24.75	6292	Robinson, Lyman B., deceased; Ross and Angelina L. Robinson, parents	20.50
4095	Quinn, William H	7.50			
4450	Quinn, Jonathan Y	15.75	6313	Russell, Jeremiah	6.25
3999	Ruthrauff, Henry S	34.25	6334	Rose, Hezekiah O	6.25
4023	Reed, James M., deceased; David K. Reed and Mollie M. Booth, children	5.50	6338	Robinson, Marion M	4.00
			6369	Roberts, William	6.75
4048	Rogers, Allen	5.00	6407	Reid, William A. D	6.00
4079	Reese, August, deceased; Maria M. Reese, mother	28.00	6640	Roberts, John A	22.50
			6645	Russell, William V	6.75
4093	Richardson, Welcome E., deceased; Eleanor H. Richardson, widow	101.75	3929	Smith, John J	4.00
			3930	Smith, James W	33.00
4094	Rutan, James C	12.50	3964	Snider, John W	4.25
4156	Ringer, Isaac J	4.00	3965	Spray, Thomas M	2.75
4224	Ramsey, James W	23.25	3990	Salmon, George W	6.25
4252	Riley, William H	62.50	3991	Sawyer, Joseph D	33.25
4338	Rice, Jacob, deceased; Margaret J. Buck and Sallie E. Simpson, sisters	22.00	4003	Smith, James P	6.00
			4032	Schilling, Augustus	5.00
4343	Rankins, Jesse	43.75	4033	Sargent, Everett D	15.00
4383	Randall, Franklin	7.25	4082	Stalker, Charles C	7.25
4367	Ross, Benjamin F	7.50	4086	Stoffer, Orin P	7.50
4455	Reed, Seymour	6.50	4087	Severance, William H	18.25
4457	Reinhart, Robert	46.25	4115	Stewart, John H	12.00
4460	Rolfe, Joseph H	13.25	4119	Shinn, James	7.50
4485	Rice, Truman	6.50	4125	Savage, John (alias Edward Wilton), deceased; Thomas Savage, brother	11.50
4530	Reed, Geo. W	38.50	4132	Snell, Jacob (or Jacob H.)	23.75
4268	Ramsey, William E. (alias Edward Wm. Ramsey)	37.00	4143	Smith, Henry L., deceased; Eber W. Smith, father	5.00
4540	Ray, David W., deceased; Eliza Ray, mother	37.00	4159	Stepp, George L	13.25
			4174	Sines, IsaacM	19.75
4570	Rhoades, Samuel A	4.50	4175	Stowell, Joseph G	39.75
4641	Russell, Benjamin F	6.50	4198	Starner, David H	7.50
4681	Ritter, Levi	20.00	4225	Smith, Norman J	7.50
4693	Rhoads, Joseph	32.25	4226	Samson, Edwin P	29.00
4899	Raboli, Celestian, deceased; Mary C. Raboli, widow	24.25	4238	Shuman, John	31.00
			4249	Snyder, Oscar	7.50
5089	Ray, Eli M	6.75	4257	Stolz, John	44.00
5128	Rees, Joseph M	6.75	4323	Shell, Johnson R	3.25
5212	Roy, James	6.75	4344	Somerdike, Casper	24.25
5246	Raver, George	6.75	4356	Stewart, Joseph	26.00
5294	Reppert, Frederick	6.75	4263	Speth, Andrew	7.50
5336	Reynolds, Robert L	3.25	4385	Sieger, George	8.75
5337	Rogers, James A	35.75	4392	Sullivan, Joshua H	27.75
5451	Reynolds, Nathan	17.50	4403	Sprinkle, George W	12.75
5455	Roberts, Edwin	21.50	4384	Sallee, George A	13.25
5477	Ramsey, Alonzo	6.75	4390	Smith, Simon	3.00
5500	Reasoner, John S	3.25	4391	Schmidt, Christian	29.75
5508	Rader, John T	7.50	4415	Stewart, James T	1.00
5517	Ray, William H	6.50	4397	Spurrier, Basil	54.25

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.	No. of settlement.	Name of claimant.	Amount.
	WAR DAPARTMENT—Continued.			WAR DEPARTMENT—Continued.	
4277	Sayer, Nehemiah	$8.00	5740	Skidmore, Thomas B	$3.75
4458	Swift, David K	12.50	5766	Shore, Lemuel	6.75
4461	Smith, Thomas	7.50	5771	Sarver, John C	41.25
4464	Stratton, Jno. L	6.75	5796	Simpson, John T	3.25
4479	Shopbell, Henry	9.75	5816	Simmons, Joseph	6.75
4531	Secrist, Geo. V	31.50	5824	Sherwood, Francis M	6.75
4532	Spencer, Samuel	50.00	5844	Sherley, Joseph	7.50
4271	Scott, Winfield	14.50	5845	Slade, James F	6.25
4541	Santway, Henry E	17.00	5857	Stephens, William	2.75
4545	Scisson, George H	77.75	5874	Sims, James	28.00
4557	Shepherd, Samuel, deceased; Mary M. Shepherd, widow	36.50	5896	Shady, Joseph	6.25
			5897	Smith, James R	6.75
			5898	Steele, David	6.25
4573	Spear, William	6.75	5903	Sutor, Robert, deceased; Alex. and Jane R. Sutor, parents	10.00
4574	Silverwood, William F	7.50			
4647	Salisbury, John H	72.25			
4694	Spaur, John G	7.50	5905	Slaughter, John C	20.75
4742	Small, James A	7.75	5918	Scott, Alexander	6.75
4743	Sechler (or Seickler), Jas. M.	24.75	5919	Shane, William	6.75
4763	Stoddard, Truman	21.00	5920	Stewart, Luther T	6.75
4764	Smith, Elias	5.00	5921	Stockwell, David A	6.75
4765	Sihler, George B	20.25	5932	Smith, Jehu	6.25
4767	Spurlock (or Saunders), George S	5.00	5941	Sherrill, Babel W	6.75
			5967	Shultes, Allen	15.00
4862	Stephens, Frederick A	7.50	5983	Small, John F	2.00
4863	Snodgrass, Hugh (or Hugh C)	7.50	6012	Schall, David F	7.50
			6013	Schmid, John Jacob	5.50
4900	Shroyer, John A	12.50	6018	Showers, David L	6.75
4937	Sheaffer, William	55.75	6028	Springer, Levi L	6.75
5080	Stephenson, Addison W	6.75	6029	Steen, Alexander T	.75
5081	Smethers, James H	6.75	6054	Smith, Lewis J	3.00
5090	Shady, Samuel	6.75	6074	Skelley, Charles E	8.75
5091	Smith, Joseph W	6.75	6118	Smith, John	38.00
5107	Seward, George A	5.00	6167	Snyder, Charles H	6.25
5116	Segrave, John W	6.75	6261	Sisson, Benj. F	6.50
5117	Starbuck, James D	6.75	6268	Shadday, John	6.75
5118	Sims, Lewis	6.75	6269	Sweetland, George O	6.75
5119	Stephenson, George	6.75	6290	Santee, William G	21.25
5129	Steele, John	6.75	6295	Stuckey, Frederick N	3.25
5133	Sally, Henry D	6.75	6297	Seim, Balthasar	58.00
5170	Spear, Mead	23.75	6299	Stockwill, James E	6.75
5171	Starckloff, Herman, deceased; Pauline Shadewald, daughter	17.25	6335	Sims, James L	6.25
			6356	Surprise, Harvey	3.25
			6359	Sharp, Thomas S	11.00
5191	Smithson, Isaac	6.75	6375	Sneed, William T	26.50
5190	Simons, Harrison	6.75	6386	Sims, Linville	6.75
5235	Snell, William H	6.75	6408	Smith, Jacob A	4.75
5247	Shephard, Richard	6.75	6423	Smith, David W	6.75
5269	Schoonover, Benjamin	6.75	6424	Smith, George D	6.75
5295	Sager, Levi	6.75	6433	Springston, Abraham	28.75
5296	Simons, William	6.75	6446	Schermerhorn, Alonzo	7.75
5297	Small, James M	6.75	6460	Smith, August	6.75
5298	Smethers, John A	6.75	6464	Smith, Thomas	12.75
5324	Smith, James M	6.75	6495	Stevens, George	6.75
5338	Setty, Anthony G	9.50	6536	Sims, James N., deceased; Cicero and Mary C. Sims, parents	6.75
5410	Sweany, William	7.75			
5415	Smith, Henry	13.50			
5417	Stevens, Edmund S	30.00	6583	Strong, Harrison A	26.00
5433	Sutherland, Bluford	6.75	6586	Sharp, William T. (or F.)	14.75
5456	Shand, W., (or William A)	6.75	6587	Stevens, Orra B	6.75
5478	Sheets, Noah S	6.75	6604	Sebring, Charles, deceased; Martha Sebring, widow	31.25
5495	Searle, George L	124.25			
5519	Sebree, Charles E	6.75	6605	Sullivan, John H	2.50
5520	Siebert, Wilhelm	28.00	6639	Sharp, Francis M	7.50
5521	Sieman, William	8.25	6648	Short, John P	1.75
5549	Stotz (or Stolts), Peter	6.75	6649	Stahl, William	11.00
5557	Stewart (or Steuart), William	63.50	6665	Sherman, John	6.00
			6681	Soule, David	36.75
5558	Sanjule, Peter	9.25	3928	Tingle, John W	6.75
5566	Sherrod, Charles	23.75	3966	Tucker, Simeon	13.50
5571	Shockley, John	6.75	3969	Thompson, Alexander	5.25
5610	Swan, James C	6.75	3978	Truit, Samuel B	28.75
5622	Silver, Isaac	44.00	3979	Tucker, William	20.50
5623	Shepard, Allen A	6.75	3984	Tilton, Leonard G., deceased; Catherine Tilton, mother	13.50
5624	Southard, Henry A	39.25			
5651	Shafer, Claudius	6.75	4080	Tucker, Moses, deceased; Emily Simpson, sister	58.25
5689	Staton, James C	99.25			
5709	Snyder, Martin	41.75	4144	Thompson, James	2.50
5719	Stech, William G	10.00	4146	Thornton, Norman E	21.50

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.	No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.			WAR DEPARTMENT—Continued.	
4190	Thomas, Hubert L., deceased; Mary L. Leonard, mother	$99.00	4393	White, Wm. (alias Rich'd Jordan)	$55.00
4221	Toney, Samuel	8.00	4568	Watt, Thomas	8.75
4378	Tuttle, Austin	7.50	4581	Watson, Thomas J	2.50
4430	Tomlinson, Geo. A	19.00	4589	Wells, Chandler V	50.75
4700	Test, Israel F	16.50	4617	Woodruff, William O	3.75
4789	Trisler, Courtney	7.25	4658	Wilhite, William	6.25
5092	Teeple, George W	6.75	4681	Weaver, Anthony	7.50
5093	Teeple, Andrew J	6.75	4744	Winston, Fountain (or Fount)	50.25
5124	Todd, Samuel	6.75	4808	Webster, James M	15.00
5303	Thompson, Eli F	6.75	4864	Whitam, E. A	7.50
5418	Thomas, Sabine R	6.25	4865	Whitney, Daniel J	7.50
5432	Tannehill, James S	6.75	5073	Waddell, E. P	6.75
5479	Todd, Robert	6.75	5082	Williamson, Robert	6.75
5617	Thayer, Alphonzo S	10.25	5083	Wilhelm, Frederick	6.75
5625	Thomas, James H	7.50	5096	Wafel, Henry	6.75
5698	Taylor, Mahlon, deceased; Rial Taylor, father	21.00	5120	Wigle, Henry H	6.75
5710	Tarble, Elisher H	13.25	5121	Walter, Samuel	6.75
5711	Thomas, Jeremiah	19.75	5149	Wiles, Thomas Leander	7.25
5852	Teegarden, Daniel	6.75	5165	Wear, George B., deceased; Jane T. Wear, widow	6.75
5853	Trusler, John N	6.25	5192	Warnock, Joseph	6.75
5902	Tumulty, Patrick	2.75	5213	White, Melville B	6.75
6053	Thoman (or Toman), John	57.25	5299	Whitecotton, Oliver	6.75
6072	Turner, James M	6.25	5305	Weddle, William N	6.75
6270	Thackrey, Thomas B	6.25	5304	Weddel, Jasper R	6.75
6415	Thornton, Samuel	3.25	5325	Weddle, John A	6.75
6486	Thome, Peter	6.75	5326	Wineinger, Adam	6.75
6496	Turner, John	6.75	5382	Waggoner, Peter W	30.75
6531	Tatlock, Joseph	6.75	5408	Wetter, William A	6.75
6558	Terriere, William	24.50	5419	Weter, James H., deceased; Margaret Weter, widow	39.25
6580	Thompson, William H	7.75	5434	Waskom, Pierson	6.75
6596	Torrence, William, deceased; Rebecca A. Parsons, late widow	7.50	5435	Weddel, DanielK	6.75
6613	Turney, John T., deceased; Nancy Huff, widow	6.75	5436	Wyland, Silas	6.75
5094	Urick, Joseph	6.75	5452	Williams, Joseph	6.75
5095	Urick, John	6.75	5480	Wilkie, Hosea C	6.75
5249	Underwood, Leander	6.75	5527	Warner, Milton	74.50
5988	Ulmer, Israel	7.75	5531	Williams, Cyrus T	19.25
4034	Vongrenigan, Gottlieb, deceased; Charles H. Vongrenigan, only child	3.25	5559	Wilcox, Luther L	6.00
4139	Vincent, Jacob L	26.75	5572	Whiteley, Enoch	6.75
4465	Van Dyke, Benjamin	10.00	5573	Williams, Eli	6.75
4603	Viers, Wilson S	13.75	5574	Wise, Jacob, deceased; Eva Wise, widow	30.00
5735	Van Houten, Ralph	7.50	5642	Willitts, Isaac B	50 75
5767	Vance, Edward A	6.25	5652	Wootton, Joshua E	24.50
5785	Vliet, Burett	9.75	5712	Weltz, William V	11.75
5854	Vance, William F	6.75	5720	Wallace, William, jr	28.75
5989	Vandyn, Jonathan	9.75	5721	Williams, Daniel H	30.00
6169	Vrooman, George W	7.50	5768	Wells, John B	6.75
6387	Vernon, Laban	6.75	5773	Wells, Abraham W	17.50
6532	Vest, Moses	6.75	5797	Waldron, Purley	6.50
3960	Whitney, James H., deceased; Edgar O. Whitney, son	7.50	5817	Wayman, Jonathan	6.75
3985	Weston, Nathan H	45.00	5825	Whitelock, John B	6.75
4004	Wigglesworth, Moses L., deceased; Caroline E. Wigglesworth, sister	21.50	5828	Worden, William H	7.25
4051	Wood, David	5.00	5906	Walker, George W	3.50
4116	Wright, Thomas C	35.75	5933	Wisner, William A	6.75
4165	Wilson, William	7.50	5968	Wagaman, James M	6.75
4176	Wetro (or Wetra), Henry	7.50	5984	Woodin, Lewellyn	14.75
4234	Wertick (or Wartick), Joseph	15.25	6019	Williamson, Jaques, deceased; Elizabeth Williamson, widow	5.00
4361	Warrick, Jas. T	6.75	6030	Weiner, Peter	1.25
4386	Walling, Hendrickson	52.00	6097	Woods, Emanuel	6.75
4422	Wheeler, Geo. M	7.50	6119	Wait, Clinton C. W	16.50
4395	Walker, Ebenezer M	29.00	6120	Wallace, Hamilton	7.50
4414	Wright (alias Jno. Hart), Sam F	64.00	6172	Whitcomb, James	3.25
4462	Whitaker, Jno. W	7.50	6291	Webb, Thomas A	56.00
4466	Weiler, Joseph	86.75	6300	White, Jacob	6.75
4480	Wheeler, Geo. W	7.00	6315	Weinand, Philip	3.25
4481	Williams, Washington	13.50	6316	Welshaus, William C	2.00
4508	Wickwire, Frank E	9.00	6317	Whitman, Henry	3.25
4511	Warren, Jasper N	3.75	6360	Wellman, Richard N	6.75
			6370	Weekley, Wesley B	6.75
			6371	Whetstone, Myron	53.25
			6376	Whittaker, John	3.25
			6416	Winship, Enoch	53.00
			6425	Weaver, William	2.75

List of claims for commutation of rations to prisoners, etc.—Continued.

No. of settlement.	Name of claimant.	Amount.	No. of settlement.	Name of claimant.	Amount.
	WAR DEPARTMENT—Continued.			WAR DEPARTMENT—Continued.	
6440	Williams, James M	18.25	5564	Yates, Socrates M	6.00
6444	Wise, Perry	6.75	5826	Yates, Daniel	6.75
6445	Wood, Benjamin F	6.75	5899	Young, Andrew	6.25
6461	Wagoner, Russel	6.75	6287	York, James	10.25
6462	Waskom, Michael	6.75	6377	Yeats, Isaac B	3.25
6466	Weimer, Aaron	6.75	6447	Younkin, Singleton	15.50
6470	Walker, Obediah	3.25	4258	Zipp, John G. (or John)	9.25
6472	Wellman, Clark, deceased; Catharine Wellman, widow	6.25	5673	Zippling, Julius	28.50
			6155	Ziegler, Eli	6.25
6497	Wise, Peter	6.75		Total amount of commutation of rations, etc., paid from July 1, 1891, to June 30, 1892	26,150.25
6559	Wren, Thomas P	15.75			
6606	Welch, Edgar D	7.50			
6641	Wright, Austin	4.50			
6671	Wing, Samuel F	49.75			
5522	Young, Christopher C	6.75			

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